Gleanings in Bee Culture

November, 1956 Vol. 84, No. 11

CONTENTS

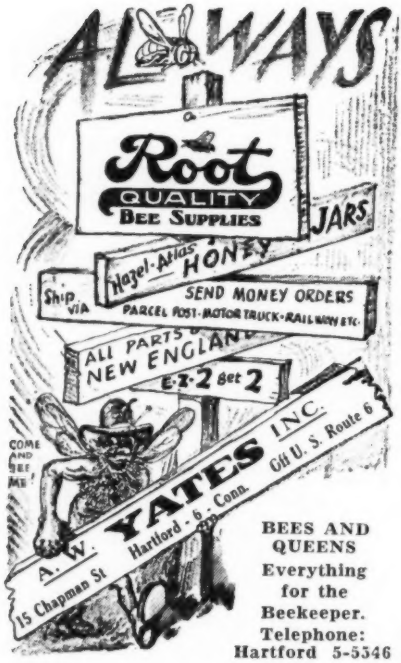
Monthly Honey Report		645
Honeybees and Cotton Production	S. E. McGregor and Frank E. Todd	649 - 652
Drone Brood above Queen Excluder	Hilbert Sorenson	653
Bee Tissue Studies Brighten Hybrid Prospects	Mervin Lynch	655 - 657
Rights and Responsibilities of Beekeepers	O. K. Blanchard	658 - 664
John May Become an Outstanding Beekeeper	George A. Van Horn	665
Portable Scales for Weighing Hives	Lloyd E. Hunt	666 - 667
Beekeeping in Oregon	Dr. W. P. Stephen	668 - 670
Good	Mrs. Benj. Nielsen	671
Editorials		672 - 673
The Rough Side of Bee Inspecting	George H. Rea	674 - 675
Newsreel		676 - 677
What Greek Beekeepers Think of Royal Jelly	N. J. Nicolaidis	678 - 679
Let's Talk about Honey Plants	Harvey B. Lovell	680 - 681
Bee Defense Against Ants	T. W. Sistrunk	681
Reply to Letter on Chemotherapy in Florida	F. A. Robinson	682 - 683
From Foreign Lands	Erika Barth	684
Live and Learn	Propolis Pete	685
Our Cover Photo		685
Winter Hive Management	Howard Pike	686 - 687
A Stinging Experience	Chas. W. Smith	687
Stock versus Drugs	Robert Strauble	688 - 689
A Talk to Beginners	M. J. Deyell	690 - 693
Just News		694 - 695

Subscription Rates: United States, Canada, Pan American countries, and Spain, one year, $2.00; two years for $3.50; three years for $5.00. Single copy, 20c. Other countries, 50c per year additional for postage. Discontinuance: Subscription stopped on expiration. No subscriber will be run into debt by us for this journal. Change of Address: Give your old address as well as the new and write the name to which the journal has heretofore been addressed. Remittance should be sent by post office money order, bank draft, express money order, or check. Contributions to Gleanings columns solicited; stamps should be enclosed to insure return of manuscript to author if not printed. Advertising Rates: Advertising rates and conditions will be sent on request. Results from advertising in this journal are remarkably satisfactory. Advertisers' Reliability. While the publishers do not guarantee advertisements in this journal, they use utmost diligence to establish in advance the reliability of every advertiser using space in this journal.

Entered as second class matter at Post Office at Medina, Ohio. Published monthly. Opinions expressed by the writers in these columns are not necessarily the opinions of the editors.

The A. I. Root Company, Publishers, Medina, Ohio
M. J. Deyell, Editor
Huber H. Root, Associate Editor — Walter Barth, Field Editor
Mildred W. Hobart, Assistant Editor

XUM



BEES AND QUEENS
Everything for the Beekeeper.
Telephone: Hartford 5-5346

A COMPLETE SERVICE for New York State and Eastern Beekeepers from

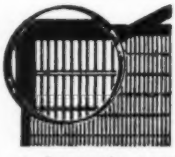
M. R. CARY CORPORATION
(formerly A. I. Root Co., of Syracuse)
Syracuse, N. Y.

- **Root QUALITY Bee Supplies to help you get more honey**
- **A complete line of Glass and Tin Containers**
- **A ready market for your Honey and Beeswax at top prices**
- **Rendering service for your old combs and cappings**

A postal card request will bring you Root's complete catalog and our container price list. Orders shipped promptly. Reasonable prices. Send sample of honey, advising how much you have. Shipping tags for honey, wax, combs and cappings sent on request.

M. R. CARY CORPORATION
1112-14 Erie Blvd., E.
Syracuse 3, N. Y.

Chrysler's Electric Welded All-Steel Queen Excluder



The only worthwhile Queen Excluder on the market

- Accurate spacing
- Allows maximum bee passage
- Better ventilation
- More honey production
- No wood. No burr combs
- No sharp edges to injure bees
- So durably made that it is permanently queen excluding and will last a life time.

We manufacture a full line of Bee Supplies. Order from our dealers or direct from our factory. Canadian-made goods are cheaper. No duty. Send for our price list. Always in the market for beeswax. Cash or trade.

W. A. Chrysler & Son
Chatham - Ontario - Canada

Apiculture Supplies

Sensible Prices
Since 1886
Write for 1956 Catalog

WILLIAMS BROS. MFG. CO.
5205 S. E. 82nd Avenue
Portland 66, Oregon

For the very finest
Thin Super
and
Medium Brood Comb Foundation
made of
Pure Beeswax
contact

The Schmidt Apiaries
Rt. 4, Bay City, Mich.

P.S. From Dec. 1st to Mar. 15th we render your cappings, combs, and refuse.

U. S. Savings Bonds come in all sizes . . . . . and grow bigger every year.

For

Root QUALITY

Goods in MICHIGAN
It's
Prairie View Honey Co.
Detroit, Michigan
Mail orders handled promptly
We carry a full line of
"everything for the beekeeper"
HONEY bought for cash or traded for supplies
Plenty of parking space for
cash-and-carry customers
PRAIRIE VIEW HONEY CO.
12303 Twelfth Street
Detroit 6, Michigan

CONTAINER PRICES

GLASS JARS

	Queenline	Plain
8 oz. per case 24	$1.10	$1.05
1 lb. per case 24	1.39	1.05
2 lb. per case 12	.95	.85
4 lb. per case 6	.75	
5 lb. per case 6		.75

Square jar for chunk honey
2½ lb. per case 12 ..... $1.22

TIN CANS & PAILS

60 lb. can 3" screw top bulk, 66c
60 lb. cans 3" screw top per case 24, ... $16.75
5 lb. pails with bails, per case 50, ... $ 7.65
10 lb. pails with bails, per case 50, ... 11.25

Cash Discount
5% on $50.00 orders
10% on 100.00 orders

AUGUST LOTZ COMPANY
Boyd, Wisconsin

MARSHFIELD MFG. COMPANY

FOR FACTORY PRICES * FOR QUALITY MERCHANDISE
FOR DIRECT SERVICE

We manufacture all wooden goods needed in your apiary.
Honey sections our specialty.

The Marshfield Mfg. Company
Marshfield **Wisconsin**

DO YOU KNOW?

We Render Cappings, Old Combs, and Slum-gum.

Rates are reasonable with a good job assured. Extra wax secured over ordinary beekeeper methods will often cover charges. See page 11 of our 1956 catalog for complete information. We are always in the market for beeswax, cash, trade, or to be worked into Bee Comb Foundation.

A. G. Woodman Co. **Grand Rapids 4, Michigan**

U. S. Savings Bonds come in all sizes . . . . .
and grow bigger every year.

DO YOU NEED MORE MONEY?
Superior Can Help You

***We Buy Honey**
***We Buy Beeswax**
***We Render Wax**

Before you sell your honey and beeswax, or before you burn that old pile of slumgum, check with us and see if we can't help you get more money for your crop.

SUPERIOR HONEY COMPANY

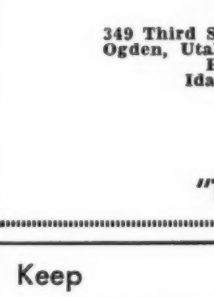
Packers of Honey
Manufacturers of Bee Supplies

349 Third Street, Ogden, Utah
4242 Elizabeth Street, Denver 16, Colorado
1880 E. Buchanan St., Phoenix, Arizona
P. O. Box 641, Idaho Falls, Idaho
15598 Road 29, Madera, California
10920 South Garfield Avenue, South Gate, California
P. O. Box 1007

Check with the plant nearest you.

"THE BEST IS ALWAYS SUPERIOR".

Keep
Gleanings
Coming



MAIL THIS COUPON TODAY OR—GIVE TO A FRIEND

GLEANINGS IN BEE CULTURE:
Dept. E-2, Medina, Ohio

Yes! Enter my subscription to Gleanings for the period checked below:

☐ 1 yr. $2.00 ☐ 2 yrs. $3.50
☐ 3 yrs. $5.00

50c per year extra for foreign

Name .....
Street .....
City ..... State .....

☐ Remittance enclosed. ☐ Bill me.

Stoller's

Frame Spacers

The finest thing ever offered beekeepers. See your dealer, or write.

STOLLER HONEY FARMS
Latty, Ohio

We work your beeswax and purchase all grades of honey.

We pay you the best prices for quality honey and beeswax.

Write for Muth's free catalog.

The Fred W. Muth Co.

229 Walnut St., Cincinnati 2. O.

Monthly HONEY Report

WALTER BARTH, Field Editor

THERE IS no longer a question of whether the 1956 crop will equal that of 1955, **but by how much less.** It is likely to be under the last five-year average of 245 million pounds although that average figure included the 1952 crop of 273 million pounds.

Fall prospects vary, but generally they are below normal. Next season's prospects are improved because of recent rains, except, of course, Texas.

Although the crop is short this year, reports about the main honey flows indicate that it is of a heavy body, light color, and fine flavor. There is no reason why beekeepers shouldn't get good prices for their present crop. Early reports of wholesale sales are at last year's levels although retail sales are several cents below last year.

So far there doesn't seem to be a scarcity of beeswax. The wax market remains firm. Recent importations of fine South American beeswax, particularly from Chile, is maintaining the present price levels.

I am convinced that beekeepers are wonderful fellows. One fellow in particular, Harry Vandenberg of Ohio, answered my appeal for sending the northern rains to Texas. He offered to send all of the excess northern moisture if the Texas beekeepers would pay the freight. Ship it, Harry.

Around this time of the year beekeepers will be visiting about their bees and how they are going into winter. Keeping this in mind, here are what beekeepers around the country are saying:

"Bees in the extreme south of the state are going into winter without sufficient stores. Some of the bees in central California came out of pollination so reduced in strength they will not be wintered. Oak honeydew has been yielding well in the northern part. Bees also worked honeydew on alfalfa caused by spotted alfalfa aphid. Some beekeepers are holding their entire crop for higher prices. Yield in alfalfa pollination area seems to be directly related to the ability of the beekeeper."—E. R. Jaycox, Cal.

"Bees are heavy for winter where overcrowding was practiced. Conditions remain very dry in most of the state with some areas declared a drought area. One lot of 5000 honey cans sold for 15¼ cents per pound f.o.b. the honey house."—W. M. Fleigner, Wyo.

"Bees are going into winter in just as spotted condition as the crop was. Some need feeding while some are as heavy as rocks. It is dry, terribly dry."—J. W. Holzberlein, Colo.

"Prospects now are good. Crop has been fair, averaging 100 to 125 pounds. Weather has turned dry since early September. Rain is needed. Good demand for honey reported."—F. Swanson, Iowa.

"Bees going into winter in very good shape with plenty of stores. However, there are more queenless colonies than in previous years."—M. H. Haydak, Minn.

"Heaviest flow from aster in recent years. Bees should have sufficient stores and should winter well provided they have frequent flights."—L. H. Little, Tenn.

"Bees are in excellent condition, queens are very active, brood nests and some supers are being filled with a good flow from goldenrod and aster. Weather conditions have been ideal for the past nine days."—G. Perigo, Ind.

"At present bees are strong but are short of food for winter. The fall aster flow is not over as yet."—E. J. Anderson, Pa.

"Colonies are in excellent condition for wintering."—P. L. Holcombe, N. J.

"There seems to be a good crop of honey for most beekeepers, mostly dark honey. The bees should have enough honey to winter."—P. J. Hewitt, Conn.

"Bees in good shape in western Virginia. Plenty of moisture most of the year."—J. M. Amos, Va.

"Strong colonies stored surplus and, mostly, are in good condition for winter. Others will require a good deal of feeding unless fall aster and goldenrod come through. We have had a good general rain as a result of hurricane Flossy."—W. A. Stephen, N. C.

BEE CALM with TAYLOR'S HIVE-BOMB

The Push-Button Bee Smoker

$1.29 plus freight at your dealers

- No sparks
- No heat
- No fire hazard
- A puff's enough

***trademark, Stewart Taylor, Camargo, Ill.**

ATTENTION

Middlesex and Essex County Beekeepers come to Pollard Apiaries and Gardens for your every need in

Root Quality Bee Supplies

FRANK L. MORRILL

165 Pollard St., North Billerica. Mass.
Tel: Montrose 3-8725 or 3-8883

WESTERN HEADQUARTERS

FOR BEE SUPPLIES, HONEY AND BEESWAX

- Certified Beeswax Salvage Plant
- Custom Rendering
- Bleaching, Refining
- Foundation Manufacturing—both plain and wired
- Top Cash Market for Your Beeswax

MILLER'S AMERICAN HONEY CO.
Woodrow Miller, owner
Colton, Calif. Phone 1722

buy and use
CHRISTMAS SEALS
fight tuberculosis

STATEMENT OF THE OWNERSHIP, MANAGEMENT, AND CIRCULATION REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912. AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946 (Title 39, United States Code, Section 233), of GLEANINGS IN BEE CULTURE. published monthly at Medina, Ohio for October 1, 1956.

1. The names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher. The A. I. Root Co., Medina, Ohio.

Editor: M. J. Deyell, Medina, Ohio

Managing Editor: M. J. Deyell, Medina, Ohio.

Business Manager: Alan I. Root, Medina, Ohio.

2. The owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address as well as that of each individual member, must be given.)

The A. I. Root Company, Medina, Ohio; A. I. Root Estate, H. H. Root, Trustee, Medina, Ohio; H. H. Root, Medina, Ohio; Alan I. Root, Medina, Ohio; Estate of N. S. Kellogg, Medina, Ohio; J. A. Webber, Medina, Ohio; Elbridge F. Gibbs, Medina, Ohio; Belva M. Demuth, Medina, Ohio; Addie M. Shaw, Medina, Ohio; Mildred C. Goldthwaite, Urbana, Illinois; Ethel A. Calvert, Alhambra, California; Barbara M. Twiddle, Dry Branch, Georgia.

3. The known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortages, or other securities are: (If there are none, so state.)

None.

4. Paragraphs 2 and 3 include, in cases, where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: (This information is required from daily, weekly, semiweekly, and triweekly newspapers only.)

ALAN I. ROOT, Business Manager

Sworn to and subscribed before me this 28th day of September, 1956.

MARTHA M. BARGAR, Notary Public

(My commission expires October 6, 1958)

the Hubbard APIARIES

WANTED: Honey and Beeswax

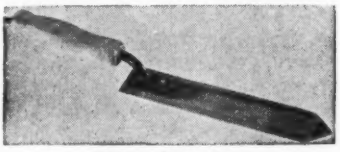
Write for Free Catalog

Quality Bee Supplies **Factory Prices**
Prompt shipment from Stock **Satisfaction Guaranteed**
Manufacturers of Bee Supplies and Comb Foundation

THE HUBBARD APIARIES

Onsted, Michigan

H. H. JEPSON CO. — 289 Congress St., Boston, Mass.
Supplying N. E. Beekeepers with A. I. Root products for 50 years.
Boston Stock — Root Prices

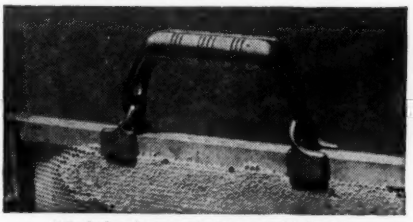


Price $14.25

The Master Electric Uncapping Knife
Ruggedly built for rugged service. Adjustable to your individual heat requirement. Your dealer stocks them.
Hutchison Mfg. Co.
2904 Colorado Ave. Santa Monica, Calif.

A NOVEL AND USEFUL CHRISTMAS GIFT
Wind-up Smoker
Uses Regular Smoker Fuels
$2.50
Plus Postage for 2 lbs.
Jens P. Vimtrup
5540 Carpenter St.
Downers Grove, Ill.

McCORD FRAME GRIP



"Originators of Frame-Grips"
Send now to McCORD MFG. CO.
Rt. 2, Box 866, San Jose, Calif.

Positive grip through the leverage action of this strong aluminum Frame-Grip.

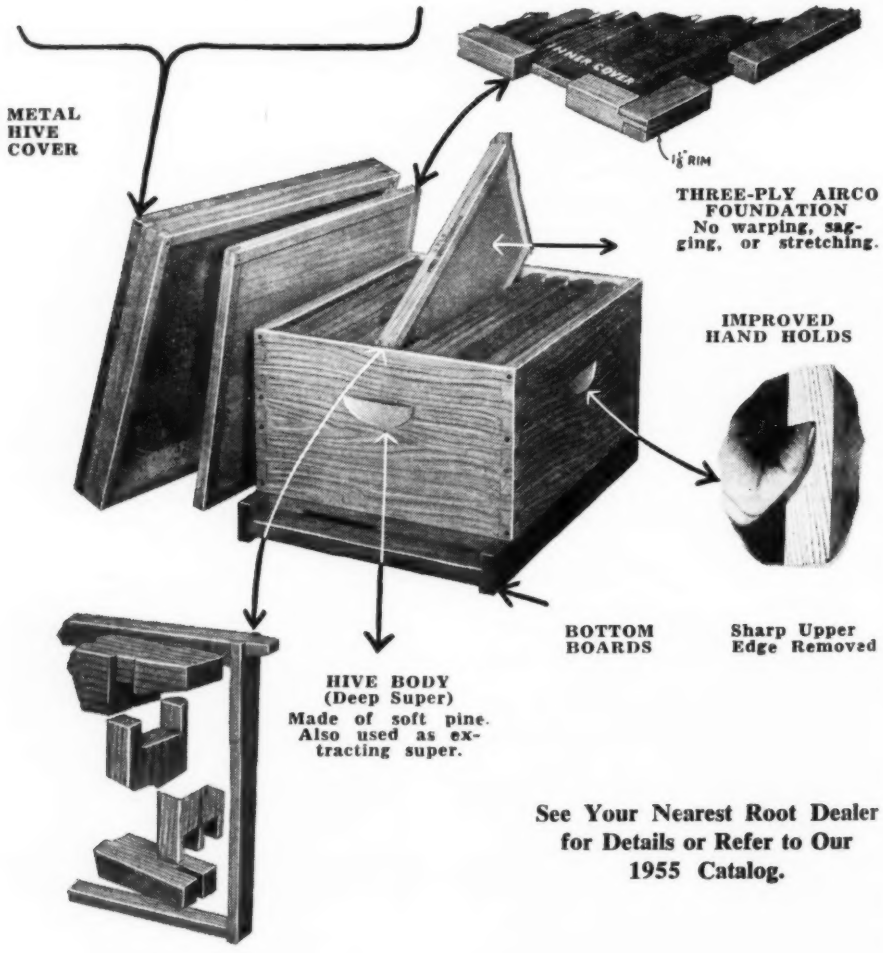
DELUXE $2.75
UTILITY 2.45
Plus 32c postage fee.

Also obtainable from your leading Bee Dealer.
Don't accept a substitute.

HONEY WANTED All Grades, Send Samples Advise Quantity and Price
"Everything for the Beekeeper"
HONEY SALES COMPANY 2817 No. 2nd St. Minneapolis 11, Minn.

We Are In Our 87th Year of Manufacturing Economical and High Quality

STANDARD Bee Equipment


STRONG INNER COVER
Extra heavy rim. Board made of three pieces.
METAL HIVE COVER
INNER COVER
1⅛" RIM
THREE-PLY AIRCO FOUNDATION
No warping, sagging, or stretching.
IMPROVED HAND HOLDS
BOTTOM BOARDS
Sharp Upper Edge Removed
HIVE BODY
(Deep Super)
Made of soft pine. Also used as extracting super.
TRIPLE-LOCKED CORNER FRAMES
Made of clear soft pine lumber, carefully inspected The top bar has rounded edges.

See Your Nearest Root Dealer for Details or Refer to Our 1955 Catalog.

The A. I. Root Company

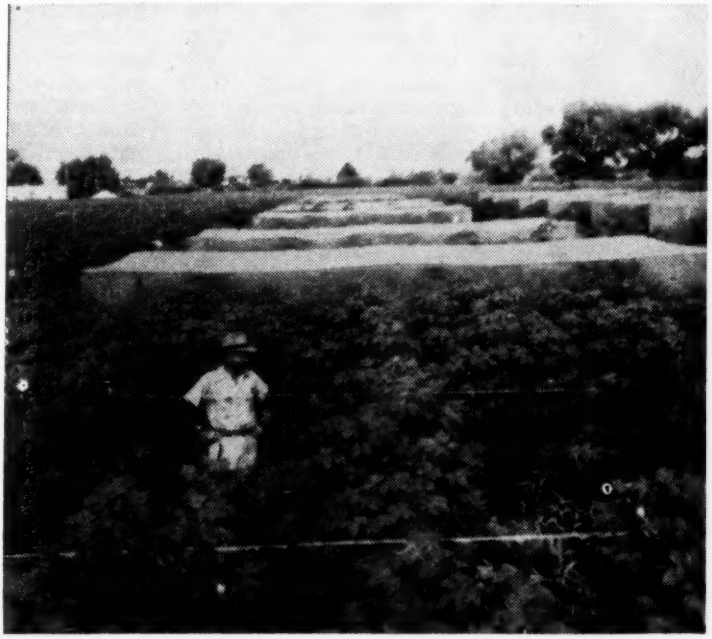
Medina, Ohio — Council Bluffs, Iowa, San Antonio, Texas

Honeybees and Cotton Production

as reported by S. E. Mc GREGOR and FRANK E. TODD
U.S.D.A., Agr., Res. Serv., Entomology Research Branch

THE POLLINATING activity of honeybees on cotton is not usually considered beneficial. This may be because most studies concerning pollination of cotton have been concerned with crossing of undesirable varieties. Information is increasing, however, that they are of value and because of the importance of this crop even a slight beneficial effect commands immediate attention.

About 16 million acres of land in the United States are devoted to the production of upland cotton (**Gossypium hirsutum**) and about 40,000 to long staple cotton (**G. barbadense**). The latter, limited to southwestern United



S. E. McGregor stands by an open plot of cotton with caged plots in the back.

Frank E. Todd studies crossing-over activity of bees between varieties of cotton in field.

States, is an excellent honey producer. In many areas upland cotton is also a reliable honey plant; the honey is of good quality and is produced at a time when most other honey plants are not. Obtaining the honey crop has often been quite a gamble, however, because practically all cotton is treated during flowering with insecticides, some of which may severely damage or destroy the colonies. Before 1945 this control was largely with the highly toxic arsenicals. New insecticides are now available which are relatively non-toxic to bees and also control most of the harmful insects. The honey crop may now be obtained while the grower uses these materials and still the services of the pollinating insects may be utilized.

The flowers of cotton are large, showy, self-fertile, and generally capable of self-pollination. The style is sur-

Apiary by long-staple cotton field near Phoenix, Arizona.

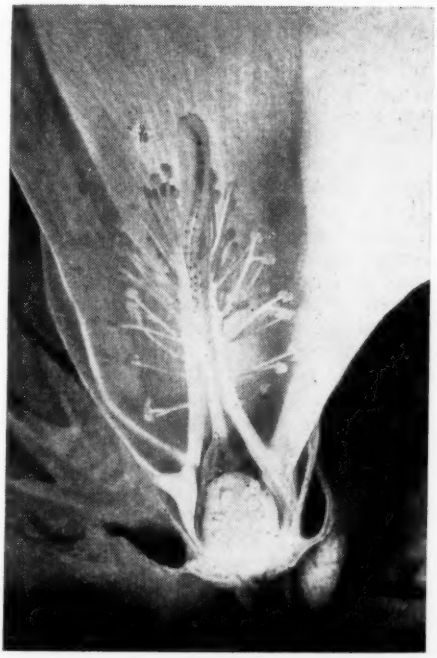
rounded by anthers that bear masses of spiny pollen. Some of this pollen generally comes in contact with the exposed tip, called the stigma, and sends pollen tubes down to the ovary where it fertilizes the ovules to form seed. This may occur even in flowers bagged to exclude all insects. Both Meade (2) and Kearney (1) showed that such bagged flowers on either upland or long staple cotton generally produce less cotton than open flowers exposed to bee visitation, and, therefore, recommended placing colonies of honeybees near cotton fields. Recently Simpson and Duncan (4) have shown further that transfer of cotton pollen plants within a variety is also beneficial in maintaining maximum vigor and productiveness.

Shishikin (3) in southern Russia used cages to include or exclude bees and showed a striking increase in upland cotton production when bees were present. He also increased production by placing colonies in the fields, and he recommends that they be placed in groups about one-half mile apart, enough to provide one colony per acre.

Cross-section of long staple cotton flower in early morning before opening of petals or release of pollen by anthers.

Tests with Honeybees in Arizona

In 1951, 1952, and 1953 tests were made at Tucson, Arizona, in cooperation with the University of Arizona Agricultural Experiment Station, to study some of the relationships of honeybees to cotton. Plastic screen cages, 12 x 24 x 6 feet, were maintained over cotton throughout the flowering period, about 60 days. Honeybees were included in some of the cages, and from others all pollinating insects were excluded. Both long staple and short staple cotton were included.



Cross-section of upland cotton flower after the petals have opened and anthers have released their pollen. Note distance pollen tubes have to travel from the stigma to the "boll" or ovary.

Difference in appearance of flowers of identical age at 5 p.m. due to bee activity. Flower at left received no bee visitors during the day and petals are still white and open. Bee-visited flower has pink petals that are rapidly closing. In both flowers the petals, staminal column, style, and stigma will shed within the next day or so leaving the inconspicuous boll to develop.

The short staple cotton, Acala variety A-33 and A-44, was harvested in two pickings, when about half the bolls were open and again when the remainder opened. Each year at the first picking from five to 20 percent more cotton was obtained from the cages with bees than from cages from which bees were excluded. This increase was due to more bolls with more cotton per boll. Total production for the season, however, was never significantly different between treatments.

These results indicate that bees cause more cotton to set on these varieties during the early fruiting season. With a sufficiently long season the plants from which bees are excluded may produce as much cotton as bee-visited plants. Early production in itself is considered desirable. The results indicate, furthermore, that if varietal response and other governing factors are similar total production should be increased with bees in some areas—for example, in much of the deep South where the flowering period is shorter than in Arizona, or where insects destroy the later portion of the crop.

The long staple variety Pima S-1 crop was harvested at one picking when all bolls were open. Total production of this cotton in the bee cages was 16.4 to 24.5 per cent more than where bees were excluded. Again the increase, which was statistically significant, was due to the setting of more bolls with more cotton per boll. This means that the grower of long staple cotton may materially increase his production by encouraging presence of pollinating insects such as honeybees.

Other Pollinating Insects Important

Honeybees are not the only insect pollinators of cotton. Bumblebees and many of the other wild bees are far more efficient as individuals, and where they are present in adequate numbers they do an excellent job. In much of the Cotton Belt west of the Mississippi River the supply of these wild bees is deficient, particularly in the larger fields.

Unfortunately, the only way we know to encourage the presence of wild bees is to leave them alone. No practical method has been developed for transporting or establishing any of them in new areas or for increasing their numbers except to leave their nesting sites undisturbed, refrain from killing them with insecticides, and leave natural vegetation for their supplemental food and nesting sites. All these procedures also aid honeybees; furthermore, honeybees can be increased, transported, and main-

(Continued on page 701

B & Z Library

Drone Brood Above Queen Excluder

HILBERT SORENSEN, Franksville, Wisconsin

Asks "How Did it Get There?"

ONE DAY last September I was examining my strongest bee colonies to see whether they needed any more empty supers. When I came to the hive at the end of the row I took off the outer cover, then lifted the inner cover an inch or two, and blew in a little smoke. I expected the usual number of worker bees to come racing out, but to my surprise out rushed a lot of noisy drones.

Right away I thought, "Oh! Oh! The queen has her brood nest above the excluder". I must look into this situation. I had taken off two full supers of honey about a month before and there were still two partly filled supers above the excluder.

I lifted the frames out of the top super and examined them. They were partly filled with honey but had no brood of any kind. Next I began to look in the lower super fully expecting to find the brood nest there. To my surprise there was still no brood. I then removed the excluder and took a look at the frames below. There was the brood nest with as nice a lot of worker brood as one would want to see. This proved to me that the queen was below the excluder where she belonged and had never been above as I first suspected.

The presence of the drones above the excluder was still a mystery to me because they could not pass through from below if they had been raised there. Upon further search, I found that two or three combs directly over the brood nest, and above the excluder, had large patches of drone comb. There was no honey in them but gave the appearance of having recently been occupied by brood.

It seemed evident that here were the brood combs in which the drones had been reared. Yet the question is, "How did the drone eggs get into these combs above the excluder"? The queen was below and could not get up there to do any laying. If she could get above she would also have had worker brood up there.

I venture two conclusions and they are: The queen had laid the eggs in the brood nest below. Then the worker bees carried them up and placed them in the drone cells and raised them there. Or, could it be possible that some of the worker bees could have produced these eggs as drone layers?

This is not the only time I found drone brood above an excluder. Once I found a patch of drone brood as large as my hand in a second-story super. In this instance, the queen was also below with her brood nest.

I have frequently observed that if there is a patch of drone cells in drawn comb used for honey production, the bees will fill all worker cells with honey but will leave the drone cells empty. They evidently expect the queen to fill them with drone eggs. If she does not do this they sometimes manage to get eggs into them in some other way. However, if bees are given a frame without foundation or with just a starter strip, they will build all drone comb. But these they will fill with honey as readily as they will worker comb.

After all, I do not yet know how drone brood gets into the supers above the excluders when the queen has her brood nest below.

[It is possible the drones above the queen excluder were produced by laying workers that as a rule, lay only unfertile eggs. There have been reports of some laying workers laying some fertile eggs. —Ed.]

XUM

Dr. Rothenbuhler jots down the numbers of gynandromorphs he has found in the colony. An accurate record enables him to develop strains of bees that have a tendency to produce gynandromorphic offspring which he uses in his research studies.

Bee Tissue Studies

Brighten Hybrid Prospects

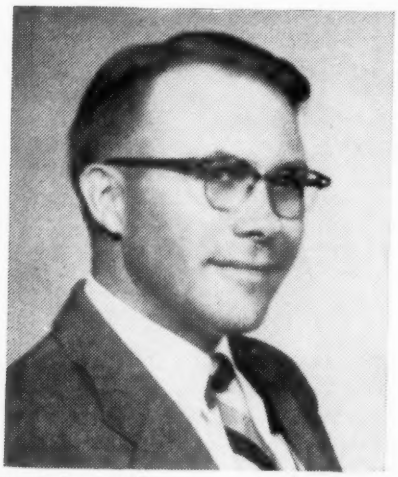
by MERVIN LYNCH, Ames, Iowa

HYBRID BEE breeding presents excellent prospects for increased profits for the commercial beekeeper. Control of the honey yield, temper, and other economic characteristics made possible by bee-genetic studies are the key to these increased profits.

Heredity in corn, chicken, hogs, and other livestock and farm crops has been studied extensively for years, but almost nothing has been done in the study of bee breeding or bee genetics.

In view of this, research work in bee genetics has been recently intensified in a few colleges and experiment stations. At Iowa State College two major lines of bee research are under way. They are:

1. An intensive study of the genetic aspects of gynandromorphic bees.
2. A study of disease resistant strain bees.



The second of these two, a study of disease resistant strain bees, concerns itself with the elimination of such bee diseases as "American Foulbrood".

The first line, a study of gynandromorphic bees, is one which research scientists at Iowa State College hope will lead to eventual explanations of sex determination and reproductive phenomena in bees.

This research was begun in 1948. Dr. Walter Rothenbuhler, then a member of the undergraduate staff, spotted a bee in a college bee colony that had a male head on a female body. Further examination revealed other abnormal bees. Some had one leg with a pollen basket and the other leg with none. Frequently a male eye appeared on one side and a female on the other side.

Dr. Rothenbuhler was curious about these features. His major professors, Dr. John W. Gowen and Dr. O. W. Park, told him that this was a gynandromorphic bee. A check in the library showed him that gynandromorphis had been known for the past 150 years, but no one had ever been able to explain why or how they had developed.

He learned that three explanations had been submitted in respect to the origin of gynandromorphic tissues. These are: (1) that the male tissue originated from the queen; (2) that the male tissue originated from the drone; and (3) that the male tissue originated from both parents.

The queen-bee origin of the male tissue was proposed by Th. Boveri in the following manner: One sperm enters

Dr. Walter Rothenbuhler, department of zoology and entomology at Iowa State College, Ames, Iowa.

Gynandromorph that has a male head, female abdomen, and a divided thorax. Thorax is male on right side, female on left.

Gynandromorph from ivory-eyed mother and chartreuse-eyed father. Male eye is chartreuse and female eye is black in color. Female eye has a patch or two of chartreuse male tissue.

the egg in the fertilization process. Something delays it from reaching the egg's nucleus. In bees this nucleus does not need to be fertilized but can develop into a drone by itself. Thus the egg cell might divide into two cells as a start toward the development into a drone. If the sperm then fertilizes one of the two egg cells, this union would begin the development of the female or worker tissue. The unfertilized egg cell would continue to develop into the male tissues of the gynandromorph.

T. H. Morgan believed that the male tissue might be originated from the drone. He conceived that two sperms might enter the egg where only one nucleus was present. If one of these sperms fertilized the egg nucleus, the fertilized egg nucleus would develop into the female tissues. The other sperm would degenerate in the case of a normal bee or it might develop into the male tissues of the gynandromorph.

Morgan later altered his concept while working with T. H. Bridges. The two men proposed that the male tissue might originate from both parents, and explained their theory in this way: Occasionally a chromosome, which is a carrier of hereditary traits, might be

Gynandromorph that is largely female but has the right compound eye male.

Head of gynandromorphic bee from ivory-eyed mother and father. Left side male, right side female.

View of face of ivory-eyed drone bee. Note small mandibles, two large compound eyes, and three simple eyes.

Face of ivory-eyed worker bee. Note large mandibles and compound eyes smaller than those of the drone. The three simple eyes are on top of the head.

lost from an egg cell nucleus that is otherwise normal. This might result in male tissue formation in an otherwise female bee.

Dr. Rothenbuhler examined each one of these proposals experimentally on gynandromorphic strains at the Iowa State College bee farms. He found that the male tissue developed from an accessory sperm, as was the case of the second explanation. This meant that the male tissue originated from the drone.

Biologically this was quite a discovery. Cases of sperm reproduction were extremely rare if they existed at all in biological history. Sperm reproduction had been reported as only possible explanations for the origin of male tissues in pigeons, silkworms, and flies, previous to this time.

His evidence had to be thorough, and here's how he gathered it. His first job was to show that one of the three hypothesis was the correct one. He set up a mating between a gynandromorph producing queen with ivory eyes and a drone with chartreuse eyes.

Under the first proposal offspring would be expected to have black female eyes and ivory male eyes; the female part would have inherited characteristics of both parents whereas the male parts would have inherited characteristics of only the mother.

The off-spring under the second proposal would have black female and chartreuse male eyes; that is the male parts would have the drone bee's traits and the female parts would have the characteristics of both parents.

Under the third proposal the gynandromorphic offspring would have all black eyes; that is both male and female parts would have inherited characteristics from both parents.

Among 5,000 worker progeny born in the test at Iowa State College, 350 gynandromorphs were produced. Worker facets in the eyes of the gynandromorphs were black indicating that they arose from both parents. The male eyes of the gynandromorphs were chartreuse, which indicated that the male tissues all originated from a sperm produced by a drone bee.

In support of this conclusion Dr. Rothenbuhler not only showed that the male tissue looked like the drone, in later tests he showed that it breeds like the drone. He also showed that when two genetically different males are mated with one queen which then has two kinds of worker offspring, the queen produces all four expected kinds of gynandromorphs in expected numbers.

Now it may be thought that gynandromorphs are hard to find. Dr. Rothenbuhler found less than one per cent in college colonies when he began his experiments. Since that time he has developed a strain of bees that has produced as many as 15-30 per cent gynandromorphs; in fact one queen produced 49 per cent offspring that were gynandromorphs.

Much more work is needed before any great number of the factors of bee genetics and bee breeding are known; but, the gynandromorph promises to be a handy tool in these investigations.

Rights and Responsibilities of Beekeepers

by O. K. Blanchard, Delta, Pa.

Member of the District of Columbia Bar

Introduction

THIRTY-TWO YEARS ago, in 1924, the Legal Department of the American Honey Producers' League, now the American Beekeeping Federation, published the law of the English speaking world which dealt with the honeybee in a small volume entitled "A Treatise on the Law Pertaining to the Honeybee". While it would be misleading to suggest that the law has changed in any very material respect since the treatise was prepared, in the interim the courts have clarified the rights and responsibilities of beekeepers; economic developments, particularly with respect to agricultural practices, have greatly enlarged the field of law affecting beekeeping activities; and additional studies have provided a basis for easier comprehension of the subject matter.

Any explanation of the law in nontechnical terms undoubtedly involves some degree of simplification of the complex rules observed in the judicial process. As the explainer, we have attempted to translate the material available, without inaccuracy or oversimplification which might induce misunderstanding, into a group of logical rules employed to bring about the just settlement of disputes. When a dispute is settled in court, a record is made both as to the reasoning followed and as to the facts involved. This record is preserved as a "precedent," and, in accordance with a fundamental precept, known as the doctrine of "**stare decisis**," future legal decisions must follow in line. Thus, rules once adopted by the courts, whether involving bees or other animals, whether involving beekeepers or other persons, establish patterns of reasoning that govern the settlement of similar cases in the future.

It is of particular importance to note that all legal reasoning is based upon a very keen and discriminating evaluation of evidence concerning relevant facts. Legal rules apply, not necessarily to the factual picture a beekeeper sees, or may be disposed to take for granted, but to the factual picture which is before the court.

Legal Classification

In legal terminology, all living creatures other than human beings are "animals," and animals are either domestic (**domitae ferae**) or wild (**naturae ferae**), depending upon whether they are tame and gentle, possessing no disposition to leave the barnyard, or whether, on the other hand, they seem predisposed to live in the wild.

In the eyes of the law—as well as those of certain non-beekeepers—bees are "wild animals". This legal classification has been observed by the courts since the days of the Roman Empire. It is entirely realistic. It recognizes that bees, although extensively domesticated as a result of successful efforts to provide them with comfortable housing and attractive living conditions, possess a disposition to revert to a natural state which is never completely overcome but requires a continuous exercise of force, art, or skill to keep in bounds. **Justinian Corpus Juris Civilis,** mentioned in **Brown** v. **Eckes**, 160 N.Y.S. 489; 2 Blackstone Comm. 391; 3 C.J.R. Animals, section 2.

Property Rights

While property rights in domestic animals are about the same as they are in other useful and valuable personal articles, in the case of unsubjugated wild animals, the State is said to hold title in trust for the people, **Lacoste** v. **De-**

partment of Conservation, 263 U.S. 545. However, individuals, subject to regulation by the State in the exercise of its police power, and an otherwise paramount right of landowners (**ratione soli**), may take private possession and ownership of them.

Wild Bees

Individual property rights to bees living at natural liberty in the wild come into being at the time they are completely reduced to possession through hiving (**per industriam**).

A swarm of bees was located in the top of a tree and a beekeeper managed to fasten a skep in the tree near them in the hope that they would accept it as a home. Athough the bees apparently entered, the beekeeper did not remove the skep to his own property and, in fact, did nothing further for a month or more. Then, one night under cover of darkness a neighbor helped himself to the bees and to some honey they had made. Our beekeeper publicly denounced him as a "**damed thief**", and the neighbor sued for damages. The Court pointed out that there could be no theft while the bees "remained in the tree", because they had been "completely, and for any valuable purpose, reduced to possession". Wallis v. Mease, 3 Binney (Pa.) 546.

However, taking and hiving will not result in good title unless there is a right to go on land where bees are, because a landowner's rights cannot be terminated by the act of a mere trespasser. Nor can ownership be acquired in violation of other law. **Brown** v. **Eckes**, 160 N.Y.S. 489; **Rexroth** v. **Coon**, 15 R.I. 34, 23 A.37 : **Commonwealth** v. **Worth**, 304 Mass. 313, 23 N.E. 2d 891.

Generally, then, individual property rights in wild bees and their honey are acquired by the first person who, with authority to enter on the land where they are living, subdues them to the extent customarily regarded as domestication. Should permission to enter on another's land and take bees located there be granted to two different persons, the one who first reduces them to possession, even if not the original finder, becomes the owner. **Ferguson** v. **Miller**, 1 Cow. (N.Y.) 243. In this situation, the first to commence the actual operation, even if driven away by the other permittee, would be entitled to the bees. **Adams** v. **Burton**, 43 Vt. 36.

Hived Bees

Properly taken, bees become personal property, and may be treated practically the same as other commodities subject to individual ownership. They may be the subject of bargain and sale and of almost any type of contract agreement. Thus, it has been held that damages are recoverable for a breach of contract to care for bees. **Ross** v. **Taber**, 53 Cal. App. 605, 200 Pac. 971. Losses occasioned by breach of warranty must be made whole. Where diseased animals were sold under a fraudulent representation that they were sound, the buyer was entitled to recover not only the value of the bees purchased but, also, the value of bees already owned by him which were lost because the disease was communicated to them. **Sampson** v. **Penney**, 151 Minn. 411, 187 N.W. 135.

Escaping Bees

However, title to bees usually is referred in the law to as a "qualified" ownership, because it exists only so long as the bees do not escape and return to the wild. The general rule governing escaping swarms is that ownership continues as long as the swarm is pursued and kept in sight, or so long as it can be distinguished and identified, even though such ownership may be difficult to assert because recovery of possession cannot be made without trespass on another's land. This is an exception to the rule ordinarily applied when wild animals escape—one which may be attributed to the fact that bees are domesticated to a high degree. 2 Am. Jur. 14; 3 C.J.S. Animals, section 6, note 59; **Brown** v. **Eckes, supra; Goff** v. **Kilts**, 15 Wend. (N.Y.) 550; Trusler, **The Law of Bees**, 5 N.C. Law Review 46.

Because in repossessing escaping swarms the rights of others on whose land the swarms may alight are involved, some uncertainty exists as to the legal rules controlling. Recent English cases in point have sometimes permitted the landowner not only to refuse permission to take up a swarm but have allowed him to hive and keep it himself. The better rule would seem to be that the original owner is entitled to enter and retake his bees, and is responsible only for such damages as may be consequent upon his trespass — damages presumably only nominal in extent.

XUM

However, pending clarification of the matter by the courts in the future, perhaps the best practical information presently available is that given by an English counselor who reputedly advises his indignant beekeeping clients, in such cases, that they are "generally better advised to rely upon diplomacy rather than to insist upon a doubtful right".

Liability for Injuries by Bees

We would be unwilling to class bees with savage animals such as lions and poisonous snakes. Our studies of their habits and instincts enable us to control them almost as certainly as domestic animals—in fact, statistics as to injuries indicate that the bull, a domestic animal, is the most dangerous animal in agriculture. It is only reasonable, then, in view of the relative gentleness of bees, to find the law appreciative of their usefulness and high degree of domesticity. At the same time, however, it is a well known fact that any wild animal, however carefully tamed or domesticated, may relapse into its wild or even vicious state, and it follows that such animals may not be kept carelessly or in a way that endangers others or interfers with their rights.

As a rule the beekeeper is responsible for any failure to manage his bees, in the light of their own nature, with due respect for the property and rights of other persons. He does not keep them at his peril, in the sense that one keeping extremely dangerous animals might be held to insure the safety of others from their attacks, but he may not keep them in dangerous quantities or locations, in disregard of known vicious conduct on their part, or in a way that creates a nuisance through interference with the fair enjoyment by others of their rights.

Dangerous Quantities and Locations

A Canadian case involved the placing of 160 or 170 hives of bees in a small yard situated within about 20 feet of a highway. Across this highway was a field of oats, belonging to a neighbor, and beyond that a field of buckwheat. As the neighbor proceeded to cut his oats, he and his team were set upon by clouds of bees. The horses were stung to death and only by jumping into a pool of water nearby and covering himself with mud was it possible for him to escape. The Court held that it was the beekeeper's right "to have on his premises a reasonable number of bees, or bees so placed as not to unfairly interfer with the rights of his neighbor; but if the number was unreasonable, or if they were so placed as to interfer with his neighbor in the fair enjoyment of his rights, then what would otherwise have been lawful becomes an unlawful act". Upon a jury finding as a matter of fact that the bees, because of their number and location, were dangerous, the owner was held to be liable for damages. **Lucas** v. **Pettit**, 12 Ont. Law Rep. 448.

Particular attention is invited to a Mississippi case in which location became important in the light of notice of prior vicious tendencies on the part of bees. Kellogg was a tenant on lands through which ran a drainage canal. Ammons lived nearby and had secured permission from the drainage commissioners to place approximately 80 beehives upon the canal embankment, elevated some feet above the surrounding ground. While Kellogg was plowing on his farm, bees from the hives attacked and killed his horses. It was decided that, while Ammons was entitled to keep bees in a reasonably safe place and manner without incurring liability for injuries caused by them, the fact that he had been placed on notice that they were likely to attack other animals working in the vicinity, because on prior occasion they had attacked his own horses, was sufficient to establish negligence in continuing to keep them at that location, so that he was liable in damages for the value of the horses. **Ammons** v. **Kellogg**, 137 Miss. 551, 102 So. 562.

Knowledge of Prior Vicious Conduct

Two interesting cases deal with the effect of knowledge concerning dangerous conduct of bees (**scienter**) kept in quantities and locations that ordinarly would not be considered perilous. In the first case, bees kept in a yard adjoining a public highway had attacked horses passing on the highway. The court stated, in part, that—

"* * * It apears that bees had been kept in the same situation for some eight or nine years, and no proof was offered of the slightest injury ever having been done by them. On the con-

trary, some of the witnesses testify that they had lived in the neighborhood and had been in the habit of passing and repassing frequently, with teams and otherwise, without ever having been molested. This rebuts the idea of any notice to the defendent, either from the nature of bees or otherwise, so that it would be dangerous to keep them in that situation; and * * * he could not be held liable." **Earl** v. **VanAlstine**, 8 Barb. (N.Y.) 630.

The beekeeper in such a case, however, should immediately move his bees away from the highway because he would be on notice thereafter that they constitute a danger to those passing by.

The second case illustrates this point. A peddler of medicines, preparing to make a call, hitched his team to a post by the side of the road near the entrance to a house. There were two bee gums about 25 feet away and three more 10 or 12 feet further away. The horses were stung to death in spite of all the peddler could do. In ordering the owner of the bees to pay for the horses, the Court advised:

"The defendant naturally expected people to visit his home, and that teams would in all probability be hitched to the post. It was put there and maintained for that purpose, and this in itself was an assurance that it was a safe place to leave his horses. But that was the course the bees were likely to fly in going to and from their hives, and there was evidence to the effect that they were prone to attack horses when perspiring, if near them. Moreover, the defendant was advised of this, as his daughter had cautioned a music teacher in his presence of the danger from them in tying her horse to this very post but a few days before." **Parsons** v. **Manser**, 119 Iowa 88, 93 N.W. 86.

Nuisance

An understanding of what constitutes actionable nuisance is of particular importance at the present time when rapidly expanding cities and towns are encroaching upon suburban areas in which beekeeping has flourished. Unhappily, the matter is one of some difficulty, even to lawyers, and one which has caused a great deal of confusion and misunderstanding among laymen. The numerous decisions which have been reached by lower and municipal courts, and which have been given publicity because of their novelty and human interest, readily lend themselves to misinterpretation and are inadequate for use as general guides to a satisfactory understanding of the legal principles involved. They have fostered an opinion that, so long as a beekeeper is not negligent, his beekeeping cannot become a nuisance. This opinion appears to be completely untenable.

Perhaps the leading "nuisance" precedent is a New York State case which involved the keeping of about 90 swarms of bees on a lot within 60 feet of a neighbor's premises and about 50 swarms on another lot within 100 feet. The neighbor, complaining that these bees were a great annoyance, stinging him and his guests and soiling articles of clothing exposed on the premises, sought the aid of the courts to rid himself of the so-called "nuisance". The court found that the real issue was not danger from the bees, not negligent beekeeping, nor even the payment of damages (which would not alleviate the situation), but the nuisance consequent upon interference with the neighbor's comfortable enjoyment of his property, and so ordered the bees moved to another location. **Olmstead** v. **Rich,** 25 N.Y.S.R. 271, 6 N.Y. Supp. 826.

A legal nuisance is a condition, rather than an activity, and, as a condition, it may exist independently of the degree of care exercised by the person responsible therefor. That is to say, an activity or business, no matter how carefully conducted, may have nuisance value simply because of location or surroundings when it adversely affects nearby persons. An extreme example would be the condition caused by a boiler shop located in a residential section of a city. In the eyes of the law, no one has a right to carry on an activity which will present the use of adjoining property for a proper purpose. A newcomer to the neighborhood is not bound to tolerate an inappropriate annoyance in the vicinity, although, in the case of a long established business he might be required to show that his own use of adjoining property was appropriate. See, generally, 66 C.J.S. Nuisances, sections 8 and 9.

If it is a fact that the cleansing habits and aggressive reactions of bees are such that under certain conditions nei-

XUM

ther a neighbor's wash hung up to dry nor his person are inviolate, it must be predicted that, as suburban areas become increasingly residential in character, beekeeping there, regardless of anything that the beekeeper does, or does not do, may, and quite probably will, become an unlawful nuisance. See 66 C.J.S. Nuisances, sections 12-16.

A great deal of confusion and misunderstanding could be avoided if it were recognized that the protection initially afforded by the law to beekeeping, or to any other business activity for that matter, does not cover recurring incidents such as make up a nuisance condition, and probably does not include cases where for reasons of legitimate public safety reasonable police sanctions have been imposed.

Bees apparently are entitled, as sometimes is said to be true in the case of a domestic animal—the dog—to a "first bite," and the first soiling of a neighbor's wash hung out to dry or the first stinging of small children picking clover on the lawn, it will be noted, does not of itself establish a recurring annoyance. Repeated incidents are necessary to make the annoyance a "nuisance".

One precedent with nuisances is frequently misconstrued. A city ordinance prohibiting the keeping of bees within city limits was declared invalid, the court stating that "Neither the keeping, owning, nor raising of bees is, in itself, a nuisance". However, the court carefully pointed out that, nonetheless, "Bees may become a nuisance in a city," and explained that "whether they are so or not is a question to be judicially determined in each case". **Arkadelphia** v. **Clark,** 52 Ark. 23, 11 S.W. 957. An entirely different principle might apply in the case of police regulations directed against conditions or activities constituting a danger to the public and designed to prevent probable injury or death. An illustrative example is an ordinance encountered by beekeepers transporting bees for pollination services, which impose severe penalties for stopping within town limits with bees which have escaped confinement. Obviously, bees aggravated by transportation are a source of definite danger to all. To the extent that regulations of this kind are reasonable, they nearly always are valid. At the very least, the expense and inconvenience of contesting their enforcement by the police will be far greater than any fines that might be imposed. See 66 C.J.S. Nuisances, section 103.

Insecticides and Poisons

The increasing employment by agriculturists of poisonous sprays and dusts, to protect crops from weeds, insect pests, and disease, has both a debit and a credit side for beekeepers. On the credit side, expanding business opportunities are opened up in the field of pollination. On the debit side, because many of the poisons used are injurious to bees, immediate and serious problems concerning their welfare must be met and solved.

Responsibility of User

In the first place, there can be no doubt that a farmer is entitled to use poisonous chemical compounds to eliminate or control weeds and pests, which otherwise would choke or stunt the growth of his crops, in order to obtain the best possible products. However, the law appears to have some mistrust of poisons. In the light of their dangerous potentialities, manufacturers and dealers, as well as all persons using them, have some responsibility for their safe and cautious application. Substances known to contain poison may not be carelessly or negligently sprayed or dusted on fruit, vegetables, or other products, in such a manner as to endanger the lives of animals or bees belonging to others in the immediate vicinity. 12 A.L.R. 2d 438, and cases cited.

Where a poisonous insecticide (Dutox) was sprayed from an airplane to kill worms in a lettuce field, and some was discharged over a nearby apiary, killing 75 colonies of bees, the beekeeper recovered damages. **S. A. Gerrard Company** v. **Fricker,** 42 Ariz. 503, 27 P. 2d 678. Where calcium arsenate was used to dust a melon patch, while a light wind floated the poison into an adjacent apiary, the Court stated:

"It must be conceded that, in itself, dusting vegetables to kill pests that prey upon them is a necessary and lawful operation which the owner of the vegetables may perform, either himself or through his servants, or may have performed by an independent contractor. However, he should not do the dusting, or have it done, under conditions which would indicate to a reasonably prudent

person that damage to his neighbor would result." **Miles** v. **Arena & Company,** 23 Cal. App. 2d 680, 73 P. 2d 1260.

In each instance the beekeeper established that poisonous spray or dust was spread so that it fell on his property, actually killed the bees, and that this occurred without carelessness on his own part.

Protection by Beekeeper

On the other hand, even where poisons are used with care, so that they do not drift or fall upon the property of others, the beekeeper is still confronted by difficulties. Obviously, a crop grower is not obligated to screen off the crops he treats. While he cannot distribute poison wantonly, maliciously, or with deliberate intent to injure or destroy trespassing bees, he is under no duty to protect them from the danger of chemicals prudently applied on his own lands. **Jeanes** v. **Holtz,** 94 Cal. App. 2d 826, 211 P. 2d 925.

Hence, there can be little or no doubt that, after receiving due notice that nearby lands are to be sprayed or dusted—if such operation be accomplished without negligence — a beekeeper is placed in a position where any failure to protect his bees is at his own peril.

In **Lenk** v. **Spezia,** 95 Cal. App. 2d 296, 213 P. 2d 47, a beekeeper was notified that tomato crops next to the lands where his hives were located were to be dusted with a compound containing arsenic. In fact, the tomato grower offered to use his own trucks to assist in moving the hives to a safe place. But the beekeeper refused, indicating that he would sue for damages if the dusting took place, and, to make things more difficult for the crop grower, even removed screens which previously had been placed over the hives—possibly as protection from other dusted areas about a mile away. Despite the fact that the wind was blowing away from the hives when dust was applied, some 518 colonies of bees died—apparently as a result of visiting the newly dusted field. Suit was instituted for their value and for the value of 14 tons of honey which they were expected to have produced during the season. Among other things, the Court said that—

"* * * with full knowledge on the part of the * * * [beekeeper] that * * * [poison] was to be used, he failed and neglected to exercise ordinary precaution to either remove his hives or to adequately screen them during the period of dusting, for protection of the bees * * *. If the owner of animals or bees has full knowledge of anticipated or actual performance of acts which will result in injury, and he fails and refuses to exercise reasonable precaution to protect them, he is guilty of contributory negligence which will preclude him from recovering damages."

Governmental Regulation

A word about Government regulation: Government, at Federal, State, and local levels, from the various viewpoints of preventing and eradicating disease, improving agricultural practices, conservation, administration of the safeguards to health contained in pure food and drug statutes, and the abatement of nuisances, is vitally concerned with beekeeping and the use and handling of its products. It appears in the picture either through an exercise of police power or in the interest of the general welfare. Pertinent law is set out in specific statutes, regulations issued thereunder, and sometimes local ordinances. It is absolutely essential that the beekeeper thoroughly familiarize himself with requirements of such law to the extent that they may be applicable to his activities. As a general rule, printed copies are furnished by the respective authorities on request.

The law in each State is somewhat different. In the Commonwealth of Pennsylvania (chosen as a typical example) bees must be kept in modern moveable frame hives, so that the frames may be easily removed for inspection, and they must be kept free from disease. It is unlawful to buy or sell, to give away or receive, or to transport diseased bees. It is unlawful to import bees or hives into the Commonwealth unless accompanied by official certificates of inspection showing freedom from disease. Provisions are made for State inspection, and beekeepers who rear queens "for sale or gift" are required to apply for inspection and certification prior to April first of each year. In the event disease is found to exist in an apiary, the beekeeper is notified thereof and with respect to methods of treatment, if possible. In-

XUM

fected shipments, apiaries wherein existing disease cannot be successfully treated and apiaries amenable to treatment but which have not been treated within 14 days after notice of disease, are declared to be public nuisances and may be siezed and destroyed without remuneration. Severe penalties are provided for violations of statutory provisions or of orders issued by the Secretary of Agriculture and his apiary representatives thereunder. Copies of the statute and advice may be obtained from the State Apiarist, Bureau of Plant Industry, Department of Agriculture, Harrisburg, Pennsylvania. Act of April 6, 1921, 3 P.S. 691-703.

The Commonwealth compensates beekeepers (upon lands open to public hunting) for damage done to bees by bears. Act of June 3, 1937, 34 P.S. 1311.1303-1307.

In the main, pure food and drug statutes affecting the marketing of honey are Federal, being administered by the Food and Drug Administration, Federal Security Agency, Washington, District of Columbia, and are designed to protect the health and pocketbook of the general public. The properties of honey are such that, ordinarily, few, if any, problems are presented. Responsibilities imposed include the duty of labeling packages or containers in a manner that is informative without being false or misleading, and the requirement that adequate standards of purity, sanitation, and freedom from adulterants or poisons be maintained. Name, address and net contents are required. If the source of honey is shown, it should be the principal floral source of nectar available to the bees at the time stored in hives. If graded, the practice of the industry should be followed.

With respect to grading, United States grades (not mandatory) are established by the Production and Marketing Administration, Department of Agriculture, Washington, D. C., after careful consideration of the views of the industry. They are used in determining Federal loan values and as a basis for Federal inspection. They are intended to fix standards of quality that (1) faithfully represent the steps or differences in market value and (2) that bring about a uniform quality description in simple easily understood terms upon which satisfactory trading can be effected. United States Standards for Grades of Extracted honey, effective April 16, 1951, 16 F.R. 2463, and United States Standards for Grade of Comb Honey, Circular No. 24, as revised August, 1933, U. S. Department of Agriculture.

Conclusion

Many other legal matters have a bearing upon the general business conduct of beekeepers. Among other things, it should be borne in mind that beekeeping is an agricultural occupation and, as such, is entitled to numerous benefits provided by Federal, State, and local statutes. In many instances, a remission of Federal and State gasoline taxes or an exemption from sales taxes, where supplies are for farm use, afford an opportunity to reduce expenses. It may be helpful in some cases to know that if sugar is used in feeding livestock—a term which includes bees —refund of the manufacturer's tax can be obtained (26 U.S.C. 3494). Similarly, it may be important to know that a price support program makes Federal loans available so that honey may be held until marketing conditions improve. Just the observance of informed commonsense business practices, such as making definite agreements and keeping accurate records, will go far in promoting a healthy legal status.

Finally, a word about obtaining legal services. A lawyer's fee for telling a beekeeper who is in doubt what his rights and responsibilities are will be insignificant as compared with his fee if the beekeeper finds it necessary to tell him what it was thought they were.

Found a Bee in His Burrow

A SURPRISE was received recently by Mr. J. Jamieson, a well-known Carterton farmer who, on seeing a rabbit enter a burrow, tried to catch the rabbit.

He went to the burrow, lay down, and plunged his hand in.

It was the wrong burrow, and Mr. Jamieson had put his hand into the center of a subterranean bee hive.

The numerous stings he received required medical attention.

From New Zealand Beekeeper, May 1956 Issue.

Ten-year old John Hoover of Moorisdale Pa., learns how to care for bees from Dr. E. J. Anderson, left, of the beekeeping laboratory at Pennsylvania State University. Lucky lad is John. He received a set of beekeeping equipment from adult classmates who admired his youthful enthusiasm during a recent beekeeping short course at Penn State.

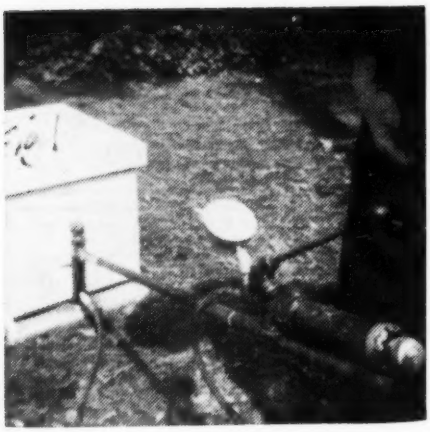
John May Become an Outstanding Beekeeper

THE BIRDS and the bees, especially the bees, mean a lot to 10-year-old John Hoover of Morrisdale, Pa. John's interest in beekeeping won him a full set of beekeeping equipment during the beekeeping short course at the Pennsylvania State University recently.

It's unusual to have a lad John's age in a University short course. But John has a brother Robert, a senior at Penn State, who works part time with Dr. E. J. Anderson in the University bee laboratory. John became interested in beekeeping from brother Bob and from a neighbor who keeps bees. So University officials waived the usual regulations and John attended class, commuting with his brother.

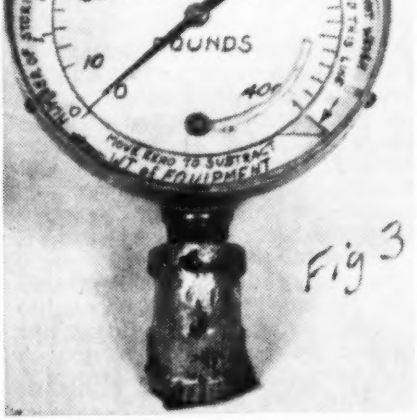
The class included men and women from Pennsylvania, six other states and Canada—30 people in all. This didn't scare the Clearfield County youth. His interest caught the fancy of his adult classmates. They got permission to give John a special certificate signed by all his classmates.

Then came the beekeeping equipment. His new friends took up a collection for a set of beekeeping equipment and had the equipment delivered to John's home in Morrisdale.—George A. Van Horn, State College, Pa.



Portable Scales for Weighing Hives

Used by LLOYD E. HUNT, Holmdel, N. J.



THE PORTABLE SCALES I use for weighing the hives on their stands consists of a hydraulic jack outfit with a pressure guage having a special scale, as shown in the photographs. The jack is placed on the entrance board so that the lifting shoe hooks under the hive body as in Fig. 1. The pump which is mounted on the handle several feet away permits operation out of the flight area as in Fig. 2. The pump handle is given a few strokes until the jack lifts the front end of the hive by a small amount, say 1/16 or 1/8-inch. Lifting any more than this is not necessary and will not change the reading. The total weight of the hive is then read directly from the pressure gauge.

The approximate dead weight of the hive may be automatically subtracted from the total reading by shifting the scale an amount corresponding to the number of stories comprising the hive. The weight indicated by the pointer is then the approximate weight of honey contained in the combs. See Fig. 3.

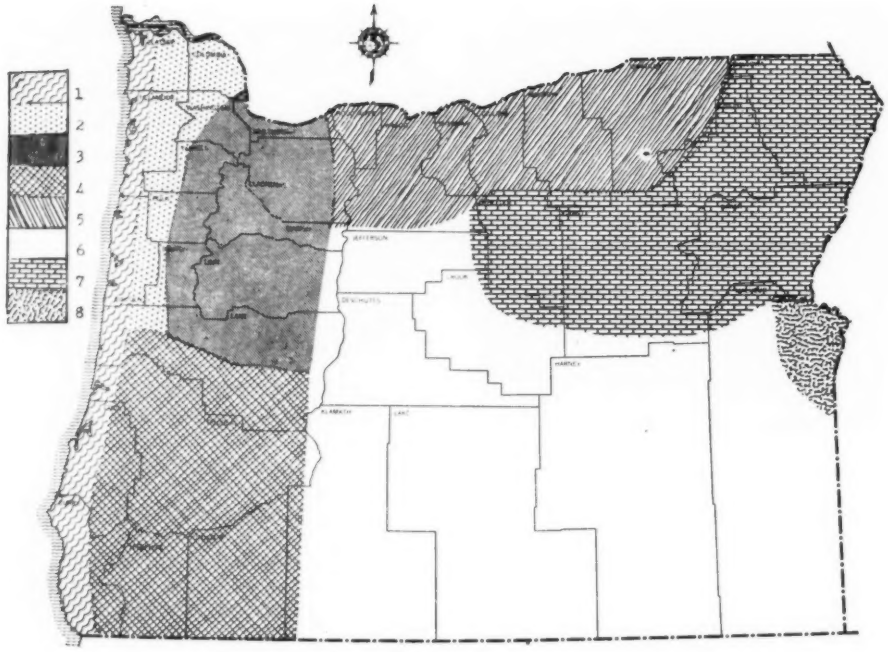
The technical factors are perhaps obvious. When the jack is supporting a weight, a fluid pressure is established and has the same value throughout the containing system. The product of the pressure in pounds per square inch by the cross sectional area of the ram piston in square inches gives the weight supported by the ram. If, in turn, the weight of the hive is evenly distributed about a center line between the front and back of the hive, half the total weight is supported by the jack. The scale indication then gives the total weight which equals twice the product of pounds per square inch times square inch of piston. In my case I calibrated my scale by putting a tank of water on top of the hive to insure even distribution of weight. Since the bees work from the center outward, the distribution of stores is approximately even.

The photographs are largely self-explanatory. Fig. 4 illustrates the portability, and Fig. 5 shows it disassembled for storing.

Attractive Roadside Honey Stand

This neat honey stand owned by Edwin W. Selfe, Monroeville, Ohio, on Rt. 18 has been operating for quite a number of years. Many tons of honey have been sold each year. There is space at the side of the highway for cars to park while occupants are purchasing honey and this is quite essential to induce drivers of cars to stop. There is an approach sign on either side of the stand.

XUM



Beekeeping in Oregon

by DR. W. P. STEPHEN, Dept. of Entomology, Oregon State College

BEEKEEPERS MAKE UP one of the smaller agricultural commodity groups in Oregon. The past ten years has seen a slow but steady decline in the number of colony registrations, even though the demand for bees by fruit and legume seed producers has increased. The reason for the decline is directly correlated with the increase in operating costs and the moderate yields an Oregon beekeeper can expect. Bees are used extensively for the pollination of cherries, apples, plums, and pears as well as in seed production on ladino, alsike, red, and white clovers and alfalfa. The full impact of adequate pollination has not reached a few of the fruit and legume seed producers, but the trend is definitely favorable. Colony rentals for pollination purposes have augmented the income of the professional beekeepers, but travel distances are often prohibitive.

Oregon's agricultural areas tend to be rather localized but in the past few years new irrigation projects have been developed and expanded. It has been estimated by the Oregon reclamation specialists that less than half of the irrigable lands are now in use and that there is over a million acres of potential irrigated crop land in the state.

There are approximately 40,000 colonies of bees in the state. These have been registered by some 1,400 beekeepers of which only 30 could be classified as drawing their major source of income from beekeeping. Yields of ex-

tracted honey fluctuate from year to year, but during the past ten years, the average run from 40 to 60 pounds per colony. The total value of Oregon's apiary products runs close to half a million dollars per annum, plus the supplementary income from colony rentals, package bees and queen sales.

Bee inspection is under the jurisdiction of the State Department of Agriculture at Salem and the research, teaching, and extension is done by Oregon State College at Corvallis. Several projects in selection and breeding, legume and fruit pollination, and research on comb honey and royal jelly are presently being sponsored by the College. Courses in Introductory Beekeeping and Legume and Fruit Pollination have been given even though the demand for such has been slight. There are a number of active 4-H groups in beekeeping throughout the state and active honey cookery competitions at county and state fairs.

The efforts of the Oregon State Beekeepers' Association have been instrumental in pressing for improved legislation and increased cooperation between themselves and related agricultural groups. Local associations in the Rogue River Valley and in Portland are composed of professionals and amateurs and are responsible for much impetus in the State Association. Both of these groups offer a series of weekly programs for new beekeepers and the attendance at these has been gratifying.

As in all western and southwestern states, beekeeping in Oregon is restricted to those areas of moderate precipitation or to expanding irrigated developments. By far the greatest portion of the state is too arid to support an intensive bee industry—this is readily apparent from the submarginal areas indicated on the map. It should be noted that abundant localized bloom in all of the mountains of Oregon supplies a great deal of nectar and pollen for early spring and late summer stores, but these areas are widely separated and often erratic. Thus, although the mountains have been classified as submarginal for beekeeping, there are a number of beekeepers who depend to a great degree upon this flora for much of their bee pasture.

The diverse and peculiar climatic conditions within the state would be much more apparent were the mountains indicated; however, an attempt will be made to describe the changes as one progresses from the coast to the eastern edge of the state.

AREA I. The Coastal Region is classified as submarginal for beekeeping although several beekeepers have managed to realize moderate yields. It is an area of high rainfall and cool summers with the temperature rarely exceeding 73 degrees. The extreme northwest, however, is one of the best fireweed areas in the state and is responsible for much of the late summer flow. Fireweed becomes progressively less important south of Tillamook County and except for a small area of white and alsike clover in Coos and Tillamook Counties, it is the major honey plant.

AREA II. The North Coastal Mountains are much like the coastal area floristically and have similar weather conditions. The fireweed regions of this area can be considered as secondary beekeeping areas as it is by far the most important honey plant. Except for these fireweed regions and a few cultivated valleys, there is a climax of Douglas fir.

AREA III. The Willamette Valley harbors the greatest concentration of bees in the state. It is a primary beekeeping zone and is heavily cultivated with a diversity of nectar and pollen plants. From willow, mustard, and fruit trees in the spring to vetch, clovers, and thistles in the summer, there is an abundance of bloom. One serious failing in the Valley is the lack of honey plants after the beginning of August. Approximately 75 per cent of the commercial beekeepers are located in the Valley.

AREA IV. The Southern Area includes southern part of the Coastal and Cascade Mountains and the northern part of the Siskiyous. Aside from the Rogue River and Umpqua Valleys, the area can be considered submarginal to beekeeping. Only in the Rogue River Valley can dependable surpluses be realized and the beekeepers rely primarily on manzanita, alfalfa, and fruit trees for their honey flow.

AREA V. The Columbia Basin is a large area in northern Oregon that is

XUM

generally submarginal for beekeeping, but there are three localities where bees are kept or moved in for pollination purposes. The fruit producing regions about Hood River, The Dalles, and Milton-Freewater depend to some extent on bees introduced for pollination although bees are kept locally. The principal problems faced by beekeepers in these localities is the lack of sufficient early spring and summer bloom. The Umatilla-Boardman irrigation district is the third of the isolated sites in the area where bees forage chiefly on alfalfa and sweet clover. On occasional years some surplus has come from rabbit brush and Eriogonum, but these sources are by no means stable.

AREA VI. The Central Desert Area ranges from 4,000 to 6,000 feet and is for the most part submarginal for beekeeping. There are two legume seed-producing, irrigated areas on the east slope of the Cascades from which midsummer honey surpluses can be taken. These two districts, the Klamath Basin and the Redmond district, are major alsike and ladino seed producing areas and many bees have been moved in for pollination. Late spring and early fall frosts severely limit the length of the honey flows.

AREA VII. The Blue Mountain Area ranges from 3,000 to 10,000 feet in elevation and is a composite of low desert and heavily wooded mountains. Except for two valleys, the Grand Ronde and North Powder, the area is submarginal to marginal. Both valleys have an abundance of legume and thistle bloom during the summer and early fall and on good seasons could be considered to be secondary beekeeping areas.

AREA VIII. The Malheur-Owyhee Area is a low-lying, primary honey producing area on the eastern edge of the state. The district is intensively cultivated and produces a variety of legume and vegetable crops. It is the major alfalfa and red clover seed producing area in the state and has a number of secondary honey plants from which surpluses can be realized.

Beekeeper and Founder of Techny Mission Press Dies

BROTHER FREDERICK KLEINE-HUELSEWISCHE, S.V.D., age 77, manager of the Techny (Ill.) Apiaries for the past 38 years and first typesetter and pressman of the Techny Mission Press, died of a heart attack at Techny September 20.

A founding and charter member of the Cook-DuPage Beekeepers' Association, Brother Frederick was honored by some 100 beekeepers of Cook and DuPage Counties at a meeting held at the Techny Apiaries this past summer.

Born in Vogelheim-Borbeck, Rhineland, Germany on February 2, 1879, he joined Divine Word Missionaries at Steyl, Holland, in 1896, putting aside his baptismal name Henry for that of Brother Frederick.

After a four-year course in typesetting and presswork, he was sent late in 1900 to the newly founded St. Joseph's Technical School at Techny, Ill. Here he helped construct the first press buildings, and in the summer of 1901 he set and printed St. Michael's Almanac, the first major printing job done in Techny by a press that is now nationally known.

In 1918 Brother Frederick expanded his beekeeping hobby into a profession. His few original colonies soon multiplied to 200 in one homeyard and four outyards, and as early as 1929 his hives produced a record crop of 20,000 pounds of honey. He was an occasional contributor to Gleanings.

The honey is sold on the retail market; the beeswax is made into candles by the Techny Candle Factory for liturgical use.

Brother Frederick is survived in this country by his nephew, Carl Huelse of Techny, Ill., a cabinet maker.

In Europe he is survived by two sisters, one of them a nun and the other a retired school teacher.

GOOD

by MRS. BENJ. NIELSEN
Aurora, Nebraska

Barbecued hamburger ring.
—Photo courtesy Kellogg Co.

GENERALLY SPEAKING, the meat division is the most difficult food classification to work out with honey as an ingredient. Very little honey should be used, so the meat flavor is not masked, and, while we usually do not, in the accepted sense "mix" honey right "in" the meat, a skillfully concocted glaze or sauce makes an ordinary meat dish one to be remembered.

Now that barbecuing is a general favorite, perhaps your family will vote the dish, shown in the accompanying photo, one of their favorites, too. And, isn't it a festive looking dish? Practically a meal in one dish, when you surround the meat ring with buttered broccoli and honey glazed carrots, or deck the center with a creamed vegetable in lieu of the fluffy mashed potatoes.

Barbecued Hamburger Ring

One and ½ pounds ground beef, 1 teaspoon salt, ½ teaspoon dry mustard, ¼ teaspoon pepper, 2 tablespoons chili sauce, 2 teaspoons Worcestershire sauce, ¾ cup milk, 2 eggs, and 2 cups corn flakes.

Honey Glaze

One clove garlic, 1 tablespoon salad oil, ½ teaspoon salt, ¼ teaspoon pepper, dash oregano, ½ cup tomato sauce, and 2 tablespoons honey.

Combine beef, seasonings, milk, eggs, and corn flakes; mix thoroughly. Press into well-greased 9¼-inch ring mold. Bake in moderate oven, 350 degrees F., about 45 minutes. Unmold in shallow pan.

Meanwhile, make a glaze by browning garlic clove in heated salad oil; remove clove. Add remaining ingredients and mix well. Simmer about 30 minutes. Spread over entire surface of ring. Bake in hot oven, 425 degrees F., about 10 minutes. Serve on heated chop plate or platter, filling center with fluffy mashed potatoes or creamed vegetable. Yield: 8 servings.

Roasted Canadian Bacon

Two pounds Canadian Bacon, ¼ cup honey, ¼ cup brown sugar, 2 tablespoons prepared mustard, 1 cup pineapple juice.

Score fat side of Canadian bacon. Combine honey, brown sugar, and mustard, and spread over top. Place on trivet in shallow pan. Pour pineapple juice over and around it. Baste occasionally while roasting. Roast about 2 hours in moderate oven, 350 degrees F.

Honeyed Ham Loaf

One pound ground ham, 1½ pounds ground veal, 2 eggs, 1 cup cracker crumbs, 1 cup milk, ½ teaspoon salt, ⅛ teaspoon pepper, 6 slices pineapple, and 10 maraschino cherries.

Sauce

One-fourth cup honey, ¼ cup brown sugar, 1 teapoon dry mustard, and ¼ cup vinegar.

Mix together meat, slightly beaten eggs, cracker crumbs, milk, salt, and pepper. Place the slices of pineapple with a maraschino cherry in center of each slice in bottom of loaf pan. Combine the ingredients for the sauce and spread ½ the sauce over pineapple, next spread the meat, packing it in firmly. Spread remaining sauce over the top of loaf. Bake in moderately hot oven, 375 degrees F., 1½ to 2 hours. Serves 10. Good cold for sandwiches.

XUM

Editorials

The Observation Hive

WHOEVER THOUGHT of the observation hive had a good idea. In the October, 1956, issue of Gleanings, page 590, Charles W. Gouget mentions the observation hive with bees as a means of stimulating interest in honey, both at roadside stands and grocery stores.

The observation hive of bees, properly used, will get the attention and interest of people passing by. A moving object in a display window will cause people to stop and look, whereas an object that does not move may not receive a passing glance.

Years ago, when The A. I. Root Company put out what was known as Airline Honey with a coast to coast distribution, they used hundreds of observation hives. We used 149 live bee displays in the leading grocery stores of St. Louis one fall. We were working with our broker, the Louis Hilfer Company, of St. Louis.

We moved 10 hives of bees onto a flat roof near the center of the city to supply bees for observation hives. The bees were hidden by a wall and comparatively few people living near by knew that the bees were there. It was possible to get to the hives through a second story window. The observation hives were filled with bees as needed, then carried to the leading grocery stores throughout the city. A live bee display was furnished with each 10-case order of honey. The grocer was to have his window cleaned out and ready for the display in advance. We had to work on schedule and we managed to put in two or three live bee displays each day. We used white and yellow crepe paper for each window. We would wrap white paper around a box and set the observation hive of bees on this stand, then pyramid both extracted honey in jars and comb honey, around the bees. We took time to make each display as attractive as possible, using display cards among the pyramids of honey. We kept this up for over a month and the people of St. Louis surely became honey conscious.

On one occasion when we put a live bee display in a corner window of what was then Nickelson's Department Store, people gathered around the window in such numbers that they blocked the sidewalk and police asked them to move on.

It is very important, when using observation hives, not to leave the bees in the hive too long. A week is long enough. The hives should be kept spotlessly clean, and should receive water periodically to help keep them contented.

Sex Determination in Honeybees

DURING THE YEARS considerable scientific work has been done on determining why an unfertilized bee egg produces a male and a fertilized egg a female. The article in this issue entitled, "Bee Tissue Studies," by Mervin Lynch, page 655, will be of interest to our readers.

We have just received from the Information Service of Iowa State Sollege, Ames, Iowa, the following which refers to the recent work done by Dr. Walter C. Rothenbuhler.

"During the past ten or fifteen years bee breeders and bee geneticists have

B & Z Library

become increasingly concerned about the problem of what makes an unfertilized bee egg become a male and a fertilized egg become a female. The most likely theory along with some supporting evidence was advanced by Dr. Otto Mackensen of the U.S.D.A. at Baton Rouge, La. Proof of the theory has eluded all investigators until the summer of 1956 when Dr. Walter C. Rothenbuhler performed an experiment using his unique strain of gynandromorph-producing bees. He discovered some very unusual bees in three experimental colonies at Iowa State College. These bees were mosaic drones, which means that these drones did not have the same hereditary characteristics throughout their bodies. The important point was that part of each mosaic drone had both a father and a mother. Drones ordinarily have only a mother.

"This discovery by Rothenbuhler, recently reported at the International Congress of Entomology meeting in Montreal, Canada, adds the final proof to the sex-allel theory of sex-determination in honeybees. This proof is of great scientific importance to biological scientists and of considerable practical importance to bee breeders. It means that all closely inbred lines of bees will produce approximately 50 per cent dead eggs and 50 per cent hatchable eggs. Such a situation makes bee breeding more difficult than it might have been otherwise, but once a difficulty is analyzed and understood, steps can be taken to get around it."

Aster to the Rescue

IF IT WERE NOT for the prevalence of various kinds of asters throughout the country, especially east of the Mississippi, many colonies of bees would die during the winter. There are over 100 species of aster in the United States and Canada. The white or frost aster (**aster ericoides**) appears to yield honey best after a light frost. This is October 12th. Today our scale hive gained between five and six pounds and if the weather continues warm, honey will continue coming in for another week or more.

Pure aster honey is quite light in color. The flavor is somewhat strong, especially after it has been kept for a time. Some seem to think that bees do not winter well on aster honey. Our experience has been that when bees have a chance to ripen the honey, they winter as well on aster as they do on any other honey.

Some years ago, however, we had a very late aster flow, continuing to the latter part of October. At the close of the flow, cold weather set in and the bees did not have a chance to ripen the honey properly. Then on top of that we had a long cold winter which resulted in some losses of bees.

Don't Forget the Women

SOME YEARS AGO we knew a man who took his wife to the city to do some shopping while he attended to some business matters. When he arrived home from the city he discovered he did not have his wife and had forgotten her because he became deeply engrossed in business matters. This is one way men might forget women but there is another way and this applies particularly to beekeepers.

As we get over the country attending bee meetings here and there we have noted that most programs consist of talks by men. We men may as well admit that we possess more than our share of ego and some of us like to be the whole show. Why not have our wives, or daughters, appear on the programs, once in a while. They can probably do a better job of making speeches than we can because it is usually easy for women to talk.

In the May 1926 issue of the "Minnesota Beekeeper," the official organ of the Minnesota Beekeepers' Association, there appeared an editorial entitled "The Hand that Rocks the Cradle Buys the Honey" and that, by the way, is what prompted this editorial.

Let us never forget that it is the women who buy the honey and put it on the table. In some instances wives help their husbands not only in the honey house extracting honey but also in the bee yard manipulating hives of bees. We know some women who know their bees and can take their row of hives and manipulate the bees just as well as any man, perhaps better than some.

So let's pay a little more attention to our wives, sweethearts, and daughters and give them the credit that is justly due them.

XUM

The old and the new North Carolina, 1916.

The Rough Side of Bee Inspecting

as experienced by GEO. H. REA, Reynoldsville, Pa.

IT WAS in the early days of bee inspection in Pennsylvania. The State Beekeepers' Summer Meeting was held at the home and apiary of Mr. A. M. Applegate, Reynoldsville. Mr. E. R. Root of Medina, Ohio, Honorable S. B. Elliot of Reynoldsville, and I were the principal speakers. The attendance was about 100 of the state's most enthusiastic beekeepers. As was usual in all kinds of farmers' meetings in those days, this meeting opened with prayer by a local minister, The Reverand A. J. Meek. There was much piano music and singing of popular songs. One of Jefferson County's prominent beekeepers, Manoah Gumbert of Ohl, played the piano and sang several beekeeping songs from the popular book "Songs of Beedom" by Dr. C. C. Miller and Eugene Secor. Mr. Gumbert led the audience in singing some of the songs and in his inimitable German accent he created a lot of merriment while doing so.

In attendance was one of the Deputy State bee inspectors who had encountered almost violent opposition to his attempt to inspect a farmer's bees. In the presence of Mr. Root he told me of the incident and asked for advice about how to handle such a case. He had not inspected the bees because the farmer threatened to use his shotgun if he persisted in doing so. He asked me if I would go with him to see what we could do, for he had inspected all of the bees in the surrounding area and it would not do to allow this one man to bluff us down. I told him that he had done right not to risk violence and possible harm to himself, for the law could be enforced; but our policy was to seek cooperation and friendship and not to enforce law unless absolutely necessary.

It was agreed that I should go with the deputy to visit this beekeeper the next day. Since Mr. Root was to stay over that night in our home, I asked

him if he would like to stay longer and go along with us and see something of the rough side of the bee inspection work. He gladly accepted.

The next day we met the deputy inspector at a road junction near the farm where the inspection was to be made. Both driving Model T Fords, he led the way. Passing through some brush land we came to a well-kept farm which bespoke the skill of a progressive farmer. A field of thrifty and well-cultivated corn was on our left, while to the right was a large field of recently-cut heavy clover and timothy hay. A large, fine-looking man with a pitchfork on his shoulder was coming down the road toward us and, as it proved, was coming to work in that hay field.

The deputy's car came to a sudden stop, and the man with the pitchfork began to swing it around in a menacing manner. Mr. Root and I were too far away to hear what he said, but he proved to be the beekeeper and the owner of that fine farm. We all got out of the automobiles, and when he learned that I was the State Apiarist he began a tirade against the state interfering with what was the farmer's private business and none of our business at Harrisburg. He said, "You fellows are not going to trespass on my property nor tear my hives apart unless it's over my dead body. I tell you my bees are all right, and it is none of your business".

His physique indicated that he might be able to enforce his threat easily, especially with that pitchfork in his hand. My attitude toward him, with which the others agreed after the episode was all over, was that of sympathy and understanding and of the highest admiration for this American citizen whose freedom of thought and action in his own domain was his most precious heritage. He, like many others, rightfully thought that the state was infringing on his individual rights without just cause. Here was a case, like many others that inspectors have encountered, in need of sympathetic understanding and explanation of the need of the work to be done. I attempted to explain that we came as friends to help him with his bees and the need for the control of bee diseases, but he would not listen and impatiently ordered us not to trespass on his property or he would use force to prevent our so doing. My only recourse was to tell him candidly that all other bees in that area had been inspected with the cooperation of the owners, and if he persisted further we would go to the sheriff's office and bring an officer along who would see to it that he was detained while we inspected the bees. I felt badly to have to say this, but it seemed the only logical course to follow. I invited him to come along and we would look at the bees together and no doubt would find lots of interest to see and talk about. He paused and then, waving his hand impatiently, said that his hay had to be cared for and he did not have time to fool with bees now, and walked over into the field.

Taking a chance that I thought would be good, for the decision had to be mine, we drove on down a small hill to a well-kept farm house with a spring house and a flowing spring of cold water. The bees were near in a neat row of white painted Danzenbaker hives. The owner in the hayfield was out of our sight on top of the hill.

His wife answered my knock on the front door, and when I had explained who we were she apologized with tears in her eyes for the way her husband had acted; but she said that she did not think he would interfere with our inspecting the bees. He had just misunderstood our intentions.

Before we had completed the examination of the 11 colonies I became aware of the presence of the beekeeper who was standing under a nearby apple tree watching us. I spoke to him and told him of some of our findings. One colony was queenless, while two others had light infection of European foulbrood, and some of the colonies were in need of another super for the storage of alsike clover honey that was coming in freely. I invited him to come down and see these things. His reply was characteristic of many farmer-beekeepers of that day, "I don't have a bee veil, and bee stings make me sick". Regardless of the fact that these bees were of the common black race, whose disposition is usually vicious, they were tame that day. I walked over to him and removed my veil, placed it over his head, and tied the strings around his body. He then looked on while I showed him the needy colonies and examined others until all were inspected. He

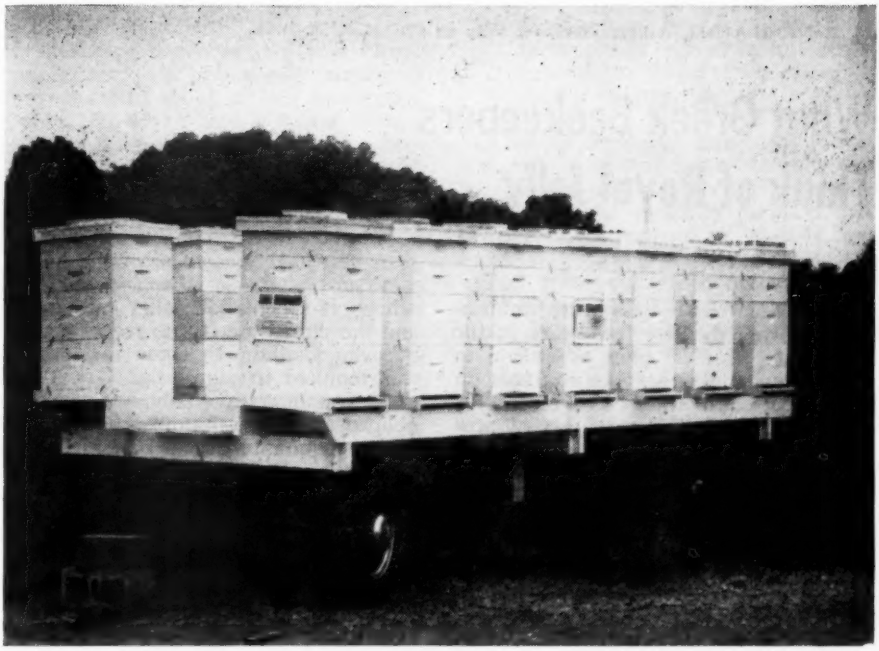
(Continued on paye 703)

XUM

News Reel

Edwinna Earp of Brooksville, Maryland, holds a colony of stingless bees from Brazil belonging to the genus Trigona. The lid of the hive has been opened to show the general construction of the nest and the size of the colony. The bees in question are slightly smaller than house flies and are excellent pollinators; however, they store only enough honey for their own needs.—U.S.D.A. Photo by Forsythe.

Beekeeper examining a skep hive containing some bees and combs of honey. Note the cross sticks in the hive to help stabilize the combs.—Photo furnished by A. Lublers, Utrecht, Holland.

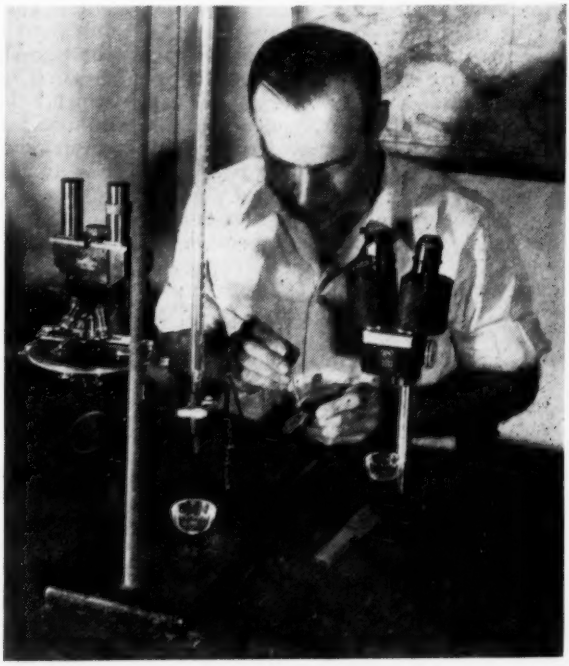


Fifteen colonies of bees permanently mounted on a four-wheel tractor. This permits me to transport these 15 colonies to the best location for the spring, sourwood, and fall honey flows with the least trouble or expense. The trailer is economically made from the chassis of an old automobile.—Ollie Emert, Knoxville, Tenn.

Apiculturists of the U. S. Department of Agriculture seek to develop new lines of honeybees that will produce more honey and be more resistant to disease than any now commercially available in the United States. Their research calls for the breeding and cross-breeding of large numbers of queen bees carefully selected for the purpose.

To determine the degree of insemination of an artificially inseminated queen bee, the number of sperms in her spermatheca is estimated. This is done by dispersing the sperms in a given volume of water, counting the number in a measured sample in a counting chamber slide, and calculating the number in the total volume.

Dr. Otto Mackensen, apiculturist at the U. S. D. A. Southern States Bee Culture Station, Baton Rouge, La., places sperms so dispersed on a special glass slide used for the estimation.—U.S.D.A. Photo by Forsythe.



N. J. NICOLAIDIS, Athens, Greece, tells us

What Greek Beekeepers Think of Royal Jelly

SEVERAL ARTICLES were published during the last few years in the daily and periodical press as well as in the foreign and Greek bee journals on the subject of royal jelly as a means for reinvigorating the human body, prolonging life, and evidently curing illnesses. These articles have aroused considerable interest among Greek beekeepers, too.

The well-known French writer, Alin Caillas, in his little book on royal jelly entitled "Les Abeilles Source De Jouvence Et De Vitalite", claims for royal jelly that it stimulates appetite, restores muscular strength, strengthens debilitated nerves, activitates all glands, and generally creates a feeling of well being to tired and weak persons. Many beekeepers are now in a position to confirm all this and among them the writer out of his own personal experience. I have used royal jelly during the last two summers and can now unhesitatingly testify that a man 73 years old can be made to feel, think, and act like a man of 53. Besides trying royal jelly on myself with this wonderful result, I gave it systematically to several persons of different ages and constitutions and the result was, as a rule, exceptionally beneficial. The alleged claims for the therapeutical virtues of royal jelly mentioned by R. B. Willson of New York in Gleanings for February, 1954, are not considered by me exaggerated at all, because I have witnessed several cases of persons cured of different diseases with the use of royal jelly. I am sure that even better and quicker results can be obtained in many instances, if we dare to administer larger doses and for a longer period. In my opinion, a minimum quantity of 2½ to 3 grams of royal jelly, taken in daily doses of grs. 0.050 (fifty milligrams), should be consumed by the patient for best results.

The usual daily dose, which I am using for myself and recommending to others, is Grs. 0.050 (fifty milligrams) and the same dose is also recommended by Alin Caillas. In some instances, I was tempted to administer Grs. 0.070 (seventy milligrams) daily, but was soon obliged to reduce the dose, because the increased quantity created a feeling of dizziness to the patient. This remark of mine confirms the experience of Dr. Townsend (GLEANINGS, April 1954, p. 208). For all that, I believe that even larger doses than Grams 0.070 are not only harmless but rather beneficial. This, however, can only be decided by physicians. I have known Greek beekeepers, who have harmlessly swallowed the contents of four or five well-filled queen cells (about ½ Gramme). In one instance a Greek beekeeper 70 years old who is also an apothecary, and as such is supposed to be very careful as to doses of medicines, has used for himself repeatedly as high doses as Grs. 0.75 (seventy-five centigrams), which is 15 times as much as the accepted ordinary dose of Grs. 0.050. The result reported by himself in the Greek bee journal "MELISSOKOMIKI HELLAS", was that he was radically cured of the overgrowth of the prostate gland and all its inconveniences.

There are undoubtedly unknown factors in royal jelly, others than the ones shown by the actually known analyses, which contribute to the combating of disease. Whether this is due to the right proportion of ingredients or to the fact that these ingredients are not synthetic but natural, we cannot say. This is why we all feel the necessity for serious research work on the subject. The public at large is not easy to convince in matters of health and it is only by scientific and clinic observations that it will be convinced.

The news we read in the September issue of GLEANINGS that the Cornell University is starting researches on the effects of royal jelly on human beings,

has been heard with great satisfaction by beekeepers everywhere and Greek beekeepers will impatiently anticipate the results of these serious researches. I think, however, that practical experience so far acquired by ordinary beekeepers should not be underestimated, as it may lead scientists to follow the right track. Some of the questions that need an answer are the following:

1. Can royal jelly be preserved without loss of its beneficial properties after being collected from the hive?
2. Which is the best way to preserve royal jelly?
3. Is royal jelly preserved well in honey without losing its beneficial properties, as French writers recommend?
4. Does dried royal jelly preserve its properties?
5. Does royal jelly differ as to ingredients and efficiency according to the season of the year it is collected?
6. Does royal jelly, produced by feeding bees with sugar and pollen substitutes, differ from naturally produced royal jelly?

There is no doubt that royal jelly is a most valuable product of the hive and that beekeepers are fortunate because its sale will substantially increase their income. Some demand has already been created here and it is generally sold mixed in honey, which means that an increase of demand for royal jelly will mean greater consumption of honey. The actual price for royal jelly in Greece is 100 drachmas, or $3.33, per gramme. It is not a high price if we compare it to the prices it obtains in some other countries, but I think that it is not the money side only that must be considered by beekeepers who should feel proud that it is their privilege to produce such a marvelous product, which will help to relieve human suffering and restore happiness to many a grieved soul.

THE MICHIANA BEEKEEPERS' ASSOCIATION

About ten years ago the Michiana Beekeepers' Association was organized with the purpose in mind of bringing together beekeepers from the North Central part of Indiana and the South Central part of Michigan in order to promote better beekeeping practices, exchange ideas that the various members use in beekeeping and promote the sale and use of honey.

In 1947, with the promotional idea in mind the Association purchased a display booth at the St. Joseph County 4-H Fair in South Bend, Indiana. Honey was contributed by the members which was sold to defray expenses and the profits were given to the Boy Scouts. In 1948, the Association again had an exhibit at the St. Joseph County Fair. The booth idea was then dropped until 1953 when it was again decided to have an exhibit. Honey was again contributed for this exhibit.

In 1954, the Association decided to expand its project to the Elkhart County 4-H air which was then held at Rice Field in Elkhart, Ind. Being our first year at the Elkhart County 4-H Fair we did not quite break even with expenses and some of the revenue from the St. Joseph County Fair was used to balance the books. In 1955, we again exhibited at both fairs, with the Elkhart County 4-H Fair being returned to the Elkhart County Fair grounds in Goshen, Indiana. By this time the Elkhart County Exhibit was self-supporting the same as South Bend.

We have just completed another successful fair season at both counties. — Owen Martin, Secretary of the Michiana Beekeepers' Association.

A display sponsored by the Michiana Beekeepers' Asso.

Let's Talk about Honey Plants

by HARVEY B. LOVELL, University of Louisville

IN THE October issue, I discussed spotted knapweed (**Centaurea maculosa**) a little-known honey plant which has become quite common in many eastern states. Here is a photograph showing the shape of the flower clusters, the peculiar scales covering the buds and the slender compound leaves. If this plant is being visited by bees in your locality please write the author of this column.

White Brush. In my July column there appeared a picture of white brush, a common plant on the deserts of West Texas and a description of its unusual white, thick honey. Since then I have had several requests for seeds or specimens of this plant not only from many southern states but also from two foreign countries. I regret that I cannot furnish seeds of white brush. Perhaps the Botany Department of Texas A. and M. College, College Station, Texas, can supply information on where to get seeds.

Giant Catnip (Agastache nepetoides). I have been making a special study this summer of an area of 700 acres called the Kleber Song Bird Sanctuary in northern Kentucky (Owen County). There has been blooming on the refuge a large number of plants of the giant catnip rising three to five feet high and covered wih many long spikes of small, yellowish-green flowers. Honeybees were working the flowers vigorously for nectar.

Leaf-cup (Polymnia canadensis) is a little-known honey plant which is common in wooded areas, especially along rocky banks. The small, yellowish, composite flowers with white rays are always alive with honeybees gathering nectar and this species must be of considerable value to beekeeping in areas where it is abundant. It has large, irregularly toothed leaves, the largest sometimes a foot long.

Japan. Professor Tanji Inoue, Tokyo University Forest, Seto City, Japan, writes that **Cissus japonica** (Japanese name—Yabuku-yashi) is a very good honey plant in the Chiba Prefecture.

Spotted knapweed (Centaurea maculosa)

It blooms from July to September about 70 days and sometimes continues into the fall. The vine reaches a height of 30 feet, is easily grown, and can be planted either in the spring or early fall. The flowers are small but numerous and yield abundant nectar. The honey is brown but has a good flavor. Professor Inoue adds that this plant has been introduced into America, but if not available he will be glad to send seeds.

Cow-itch (Cissus incisa), a member of the grape family, has been reported to yield honey in Texas and Mississippi. Roy S. Weaver of Navasota, Texas, wrote me that the honey is amber, with a strong flavor, and that surpluses vary from 10 to 40 pounds, but generally the honey is mixed with cotton in river bottoms. It is not considered a table honey in his area.

Arizona. Niles D. Benson writes that "Once a good many years ago, I got a crop of honey from Brittle-bush (**Encelia farinosa**). It was light amber to amber in color and had a sort of 'mapley' flavor; every one who ate any of it sure did like it. It was the rainy winter and spring which made it produce." He adds that his main desert honey plants are mesquite and catsclaw. Brittle-bush occurs from southern Utah and Nevada through western Arizona to southern California and northwest Mexico. It has yellow composite flowers with purple centers. The stems secrete a gum chewed by the Indians and used in the churches of Baja, California.

Oregon. Mr. R. C. Bigelow, Dayton, writes me that his best honey plants are crimson clover which blooms in May and hairy vetch which blooms from May 20 to June 10. The latter honey is water white with a very mild flavor. He rents bees for pollination of cherries, plums, and clover at $3.50 per hive. He adds "For the first time I am trying two acres of buckwheat and am anxious to find out how it yields here."

California. The great variation in beekeeping problems in this state is well illustrated by some comments by John Allred of Madera. He writes, "We operate about 1500 colonies of bees mostly within Madera County, which is from 40 to 14,000 feet in elevation with a great variety of bloom and many unusual conditions. We have had bees only up to 6,000 feet. At present we have 800 hives in the Sierras with one of the apiaries at the edge of Yosemite Park." A rise in elevation of 500 to 1000 feet not only changes the time of bloom, but usually changes the species of honey plant. In many cases bees follow the blooming of a good honey plant up the mountain slopes.

BEE DEFENSE AGAINST ANTS

by T. W. SISTRUNK, Gainesville, Florida

ONE DAY while watching my bees I observed a case of bee behavior, which much to my surprise, I cannot find recorded. This is very unusual. Most bee books go into great detail describing all types of bee behavior such as their manner of caring for their young, their posting guards at the entrance of their hives, of their working wax, of their collecting pollen, and many others.

The bee behavior I observed is concerned with the action bees take when confronted with an intruder smaller than themselves. I have learned they have a unique way of dealing with such a situation. If an ant or some other small insect tries to gain entrance to the hive the bees seem to sense that he is too small to deal with physically. He is swift in movement and hard for the bee to grasp. The ant has advantage in being small and there is the danger that he may overpower the bee. When an ant approaches the bees at the entrance and gets close enough for the bees to recognize him as an intruder, an interesting turn about takes place.

The bees are usually facing outward, and as the ant approaches the nearest bee, the bee makes a sudden about face, and at the same time lets go with a powerful blast of air with its wings. The ant, not being prepared for such a sudden wind storm, is blown like a tumbleweed away from the hive entrance. When the ant collects itself, it is usually on the defensive, and glad to retreat. This is certainly an effective and safe way for the bees to protect themselves.

I have observed this time and again not only through experiment, but also as it occurs in nature, so there is no doubt that it is not unusual. It is a practical adaptation to the problem of protection.

A Reply to the Letter on

Chemotherapy in Florida

by F. A. ROBINSON, Assistant Apiculturist, Florida Agricultural Experiment Station, Gainesville, Fla.

IN A LETTER published in the September issue of this magazine Dr. J. E. Eckert of Davis, California, has raised several questions which I feel should be answered since they directly reflect on the actions of the State Plant Board of Florida, and also on work done by other state agencies.

In the article, "Regulation Permitting Optional Feeding of Sulfa in Florida Rescinded", to which Dr. Eckert refers, it was never stated that AFB could not be **controlled** by the use of sulfathiazole, but that the treatment had not proven economically feasible in Florida. In an article published in the Journal of Economic Entomology, Eckert (1) says, "The question of economy in using this treatment will depend on many conditions as one will have to consider the amount of labor and materials involved, inconvenience and risks of quarantine, contamination of extractors and other warehouse equipment, and holding the colonies out of production for several months to a year or more, as against the cost of destroying the bees and combs and starting over with new equipment". It was only after years of using sulfathiazole and considering all the above conditions Eckert mentioned, that the commercial beekeepers of Florida requested the State Plant Board to rescind the rule allowing the use of sulfathiazole for treating diseased colonies.

1. Eckert, J. E., The Use of Sulfathiazole in Relation to American Foulbrood Disease of Honeybees. Jour. Econ. Ent. 46 (2): 382-383 (1953)

It should be pointed out that the present Florida regulations do **not** prohibit anyone from feeding sulfathiazole to their bees but merely requires the immediate burning of colonies found to be infected with AFB. Eckert (1) also states that, "Most beekeepers in California prefer to destroy what few colonies they find infected with this disease rather than to treat with sulfathiazole on the grounds that it is cheaper and more satisfactory in the long run". This is the same conclusion reached by most of our Florida beekeepers.

Dr. Eckert points out that according to figures given by Mr. H. S. Foster in his 1954-55 Apiary Inspection Report, the incidence of AFB in Florida dropped from 1.3 per cent in 1946, to .9 per cent in 1955, and he attributes this drop to the use of sulfathiazole. I feel it would be just as logical to compare the disease rate for the fiscal year ending June 30, 1945 which was .54 per cent with the rate for 1953 which was 1.4 per cent. Those figures would show that after seven years of using sulfathiazole the number of diseased colonies had almost tripled. Dr. Eckert also neglected to point out that the same 1954-55 Apiary Inspection Report states that in the year ending June 30, 1955 where 1,421 diseased colonies had been discovered, only 97 were treated with sulfathiazole while 1,324 were burned, even though they could have been treated with sulfathiazole had the beekeeper desired to do so. Thus when less than 10 per cent of the diseased colonies

were treated with sulfathiazole, I fail to see how anyone can credit any reduction in total number of diseases colonies to sulfathiazole.

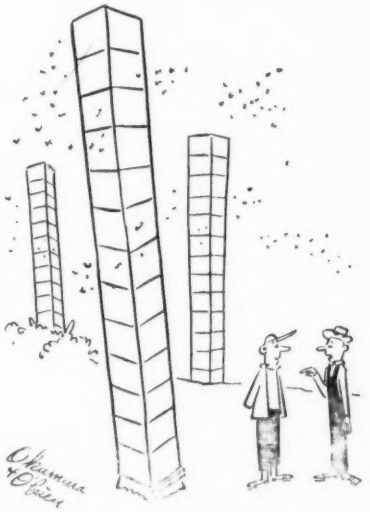
In his letter Dr. Eckert states, "Our average cost of feeding sulfathiazole to eradicate AFB from a set of combs will average about three cents". Evidently this figure refers to the actual cost of the sulfathiazole itself, but surely does not include all cost such as labor, and travel to and from the apiaries. As was carefully pointed out in the article by Dr. Morse and this writer, bees in Florida are frequently moved 100 miles or more to take advantage of the different nectar flows. If one's bees were quarantined 100 miles away from one's headquarters I don't think they could be treated with sulfathiazole for three cents or even three dollars per colony. According to the Florida laws, diseased apiaries are quaranteed wherever they are located. Thus Eckert's statement that, "Quarantine apiaries, for the purpose of disease eradication, should not be established at long distances from the owner's residence," would be of little more than academic interest to the Florida beekeeper whose bees happened to be quarantined in South Florida when his residence was in the central or northern part of the state.

I also feel that it is quite misleading to use the term, "eradicate AFB", when referring to treating bees with sulfathiazole. Eradicate means, "to get entirely rid of", or "destroy completely". According to these definitions, one would not have eradicated AFB as long as viable spores remain in the hive.

In his earlier article Eckert (1) also refers to the danger of contamination of honey by feeding sulfathiazole with this statement, "If diseased colonies are fed during a honey flow, the sulfathiazole will be mixed with the incoming nectar and the resulting product cannot be sold as pure honey".

In regard to Eckert's comments regarding the studies made in Florida on the use of parathion I was very interested and surprised that anyone who has worked with insecticides to any extent would make such a statement as, "I doubt that weather can be a factor in the differences observed", when talking about the action of parathion. Here in Florida, parathion has almost no residual action as it breaks down very rapidly. Chemists at the Citrus Experiment Station and at the main station in Gainesville have shown that after 72 hours there are only minute quantities of parathion residues left on citrus and most vegetable crops. Also when mixed in the soil for control of certain soil insects, parathion is effective for only a few weeks in Florida, while in New York State it remains effective for several months.

The article to which Dr. Eckert referred, regarding the hazards of parathion to honeybees in Florida, very clearly stated that on citrus and watermelons the danger was negligible, **if applied** in the **proper manner** and at the **proper time.** It was also pointed out that in the case of watermelons, this meant applying in the afternoon or night, at which time the flowers are closed and bees are not working in the fields; and the danger of drift is considerably less as there is usually little or no wind to blow the insecticide to other fields.



"Are you the city sucker who used to work in the Empire State Building.."

FROM Foreign LANDS

Translated and Edited by Erika Barth

Average Beekeeper?

THIS QUESTION caused the Beekeepers' Association in Upper Austria to analyze its membership list of 12,500 members according to age. The results appeared in **Oberost Imker**, and a summary appeared in the **Bee World** too.

Summary of Austrian Results

AGE	PERCENTAGE
under 17	3.5
18-30	14.3
31-40	13.5
41-50	24.1
51-60	23.5
61-70	13.8
over 70	7.3

Commenting on the fact that just over two thirds of the above listed beekeepers are more than 40 years old, the **Bee World** adds, "While many people take up beekeeping fairly late in life, these figures suggest that in Austria—as in some other countries—the present generation of beekeepers may have to take vigorous action if the next generation is to be as large".

Bee World. July 1956.

New Treatment for Bee Stings

MR. H. L. PEAKE recently reported a new treatment for bee stings in the **British Medical Journal** (No. 4982: 1547) which will probably interest all Gleanings readers. Here is a part of the published letter:

"Sir: I have discovered quite by accident that tincture of iodine is an excellent remedy for bee stings. The sting is scraped out with the edge of a knife blade, and a drop of iodi mitis is applied, with immediate effect.

"It happened that five years ago I was elephant hunting with my son when he was stung by a bee, and, having no alkali or spirit handy, having just run out of the methylated spirit used for the pressure-lamp, the only thing containing spirit that I could think of was tincture of iodine. This was applied and the result was dramatic. A few days later we were both stung and the remedy again worked. Since then I have used it regularly with invariable success. Bluebag, ammonia, spirit, and the antihistaminics I have found disappointing.

"Today a controlled experiment accidentally took place. My other son was stung in two places 5cm. apart, although he did not realize it at the time. The sting was extracted and the iodine applied. Two minutes later he reexamined the elbow and found a raised white weal at the site of the first sting and nothing where the remedy had been applied. Iodine was immediately applied to the weal, and it disappeared in about 30 minutes."

Brit. M. J. June 30, 1956.

Noted International Beekeeping Scientist Dies

THE DEATH of Miss Elsie J. Harvey, discoverer of the cause of acarine disease in honeybees, was reported in the **Scottish Beekeeper**. While this disease is not prevalent in North America, it is a serious malady in Europe.

From 1904 until 1920—the black years of British beekeeping—acarine disease spread like an epidemic. Hundreds of thousands of pounds worth of bees and equipment were lost, and fruit growers must have lost even more because of the lack of bees for pollination. It was while working on research in the disease at Aberdeen University in 1919 in association with Dr. Rennie and Dr. Bruce White that the parasite was observed by her. She was the first to see the mite in mounted specimen.

The Scottish Beekeeper. Aug. 1956.

Live and Learn

by Propolis Pete

JUST GOT BACK from a little trip up to honey country, and hope that I can get this in before the deadline for November. It was quite a novelty again to see bee hives with four or five supers on them, but I could not help converting the crop into dollars and cents. I don't get crops like that, but I do get prices that even things out in a surprising fashion, with a lot less work.

The difference may level out in the near future, because my sins are catching up to me. I have set up a lot of beginners in recent years and quite a few of them now have more honey than they need for their own use. So, pretty nearly every roadside stand has some local brand of honey on it. But, as in my case, production per hive is comparatively low, and, since there are no large beekeepers, nobody has any great amount to sell. The price should hold until some renegade gets impatient with the velocity of his sales.

Some of these new beekeepers have a roadside stand and got the idea of keeping bees from the honey that I put on their stands for them to sell on a commission basis. In most cases they do not have the facilities to extract, strain, and bottle their small crop, so most of it is cloudy, with considerable foam, and a few pieces of wax or slumgum floating on top. Also the proverbial dead bee that proves that it is pure honey.

Some of them don't produce enough to fill the demand on his stand, so my honey is on the same shelf with his. If I do say it myself, the honey that I sell is a nice-looking job. I don't filter it, or heat it, but I do strain it through a big voile bag and let it settle a couple of days in a honey tank before I bottle it. My "honey room" has a low roof and when the windows and doors are closed in August, it gets quite warm, so the result is a beautifully clear job with practically no foam on the top. My label is blue and white, which makes a very pleasing color contrast with the golden color of the honey, especially in the one-pound Queenline jar.

What do you suppose happens when my customer puts his honey alongside of mine? Generally they pack in old mayonnaise jars, or Mason jars, and price each according to the individual weight. (I coach them on the prices, which are the same as mine, per ounce of contents.)

Not to prolong the suspense too long, their honey outsells mine two to one as long as it lasts. For some funny reason, people think that with the cloudy honey they are getting the real thing, pure farm honey. Mine is so clear and nice looking that it just can't be pure. There is syrup in it some place, because they knew a man once who put honey labels on corn syrup.

None of this should be taken as a recommendation that all beekeepers should start putting out a sloppy pack. The people who think that way are a vast minority. The customers who come back year after year, and who place their orders for next year when they buy it this year, make up the bulk of our present trade. The misguided people who buy the "raw" honey because it is dirty are potentially regular honey users. The chances are that they have not bought any for years, and when they find out how good it is, and when they realize that it can be even better when it is clean, they will buy more and more of what you have to offer them.

One instance of how silly it can be is this: On one stand where I have a stock, a very suspicious lady wanted to buy, but hesitated because she was sure it could not be pure. The owner happens to be a one-colony beekeeper who produces honey for his own table, but don't want to bother with any more than that. He told her that he had some of his own if she wanted it. She was tickled to get real farm honey, and paid him $2.00 for a quart that he had just crushed out of some shallow frames, and which had not yet been strained. He is still kidding me about strained. He is still kidding me about it.

Our Cover Photo

THE OWNER of this small apiary has chosen an ideal spot for wintering his bees. We assume hives are facing south. The fence will break the force of winter winds.—Photo by Thos. Doonan, Des Moines, Iowa.

Winter Hive Management

advised by HOWARD PIKE, R. I. Bee Inspector

VENTILATION! There is not a great deal to be done for the bees in winter if we have carried out all the necessary manipulations earlier to insure their well being during winter and early spring. Bees wintered outdoors do not require much ventilation. Some, of course, is needed to overcome the condensation of the water vapor caused by the difference in temperature inside and outside the hive, as well as the moisture from the bees as the result of the consumption of food. Ventilation is especially needed when lack of protection from winter winds causes the bees to eat large quantities of their stores necessary to produce extra heat energy. The size of the entrance will have some bearing on the amount of ventilation. A strong colony should have a larger entrance than a weaker colony, other things being equal. It is well to look at the entrance after an ice or sleet storm, or after a very wet snow which may later freeze. Break away the ice from the entrance if the sun does not melt it. Dry snow will do no harm and will be an added protection from the wind so long as the entrance is not clogged by ice. A tightly closed entrance will prove fatal to the colony if left closed for any great length of time when there is no upward ventilation. Dead bees dropping from the cluster will also sometimes close the entrance, shutting off ventilation and smothering the colony.

While we are on the subject of ventilation, something should be said about upper entrances. Top entrances as well as other upper entrances have been used by beekeepers for many years and, while some claim complete success with their use, others are skeptical of their merits. Some leave only the top entrance open in winter, with the bottom one closed, while some advocate using both top and bottom entrances. The main purpose in using a top or other type of upper entrance is: (1) to help get rid of the moisture from within the hive; and (2) to provide a chance for the bees to gain access to the outside if the bottom entrance should become clogged with dead bees.

There are several methods in use for upper entrances. The best one for this locality is the one you have used with success and you are advised to stick to it. If you are a beginner in beekeeping, learn as much as possible about bees before you start boring holes in the hives for upper entrances, as the problem of the perfect upper entrance has not been sufficiently solved for the whole bee industry to adopt it. However, it appears that the upper entrance has some merits and is worth experimenting with by the more experienced beekeepers. On the face of it, there seems to be some danger of losing heat through this entrance, because of the fact that as the warmer air rises, it will go out through this entrance if it is located at the extreme top of the hive. To reduce this loss, some beekeepers have used an entrance lower down on the hive and have bored a hole in the hand hole of the top body or food chamber, if the bees have wintered in two bodies. This method appears better, and an additional step is advised: Bore a hole just under the hand-hole as we do not like to have bees stinging our fingers when we lift off our supers or food chambers during the summer.

The upper entrance is always located at the front of the hive and is made with an auger bit of five-eighths inches to one-inch in diameter. The regular bottom entrance in winter is one and one-half inches long by 5/16 inches high. The regular bottom entrance is used in combination with the upper one. The upper entrance may be plugged permanently at any time if we find it is not satisfactory, and no real harm will have been done to our equipment. The bees just love this upper entrance in summer, and you will also after you have used it.

Activity of Colony

The life span of the bees depends upon the extent of their activity either during the winter or summer. So, if they are kept quiet during the winter by making all conditions as nearly perfect as possible, and by giving adequate protection and the best stores possible, they will respond favorably to this treatment and come through the winter in a flourishing condition with plenty of bees to start work in the spring, thus building up the colony to greater strength.

Fifty-seven degrees Farenheit is the accepted temperature at which the bees may remain quiet within the hive during the winter. At a higher temperature they will loosen and probably break the cluster and some bees will fly outside to void their feces. Below 57 degrees they will tighten the cluster and start to generate heat by muscular activity. At the same time, they are forced to consume stores to keep up this activity as long as the temperature stays low. The bees on the outside of the cluster which are acting as insulators to keep the heat in, become chilled and move toward the inside. Likewise the bees on the inside move out to take up their place so that not many bees are long exposed to the cold outside of the cluster. This activity, if kept up for a long time, uses up stores rapidly. If the colony is properly protected from the extreme cold weather by windbreaks, either natural or artificial, the amount of honey consumed will be much less than in a colony not protected.

A STINGING EXPERIENCE

by CHAS. W. SMITH, Swannanoa, N. C.

AS A PASTOR I have had much pleasure in beekeeping during the last three or four years. At an early age the fear of bees was terrific. Now this overwhelming fear has given way to great interest in all phases of the art.

One day, late in the day at that, a boy came by and said his dad had a swarm of bees he would give me if I would come and hive them. This was a new challenge to me, as much study had been given to this important duty of beekeeping. We were supposed to have a meeting at the church that night, so things had to be taken care of hurriedly. The lesson of taking your time in hiving bees was learned that day for sure. The smoker, gloves, veil, and other equipment were hastily thrown into the car and the big project was facing us.

My would-be benefactor met me at the yard gate and said, "I would help you but they hurt me awful", as he pointed to the fence post in his back yard where the swarm had rested since about 9 A.M. After getting things in order and trudging confidently toward the post with smoker lighted, empty hive in hand, he said, "I just take my hands and sort of scoop 'em up until I get the queen". I decided to do that, all the while keeping an eye on the time. I made one scoop when zip!—those bees were not in favor! They pounced under my veil, crawled under my light coat, stinging all the while and chased me to my car. As I went by the house I heard the man's wife screaming and I thought she was being murdered, but it was one of those bees threatening her if she did not move.

At that point the man's son, interested in 4-H club work, was thinking of bees as a project. He said, "I'll hive those bees for you while you are gone to your meeting tonight". "Fine," I said, because the hour was getting late. When I returned that night there stood the smoker, quietly encircled by the remaining smoke beside the abandoned project.

At the crack of dawn, though sore from so many stings about my ankles and face, I determined to get that swarm of bees. Again I waded in and managed to scrape enough of the bees into the hive with my hands to include the queen, and ran hastily to the car with dozens of bees stinging me all the way. The others entered the hive and after a few days it could be moved beside my other two in the back yard.

Since then I have thought of many ways I would do that job now. Also, I have bought hybrid queens, package bees, and just queens but none have made any more honey than these "mad hatters". The sourwood flow here is not dependable and it requires a very active type of bees to go out and get it.

Stock

versus

Drugs

by ROBERT STRAUBLE, Techny, Illinois

EUROPEAN FOULBROOD (EFB) was giving me plenty of trouble up in Northern New York about 18 years ago, and believe me, it can make a mighty dicouraging mess! At that time we were so badly hit that I volunteered my services to the State to help clean it up. Requests for help were in such demand that I neglected my own bees. Two-thirds of the colonies in my home-yard were hit. Many were so badly weakened that bee moths soon got out of hand and ruined some 90 supers for me. And that in a yard of 25 colonies! There was hardly a single beekeeper in all of Northern New York who didn't suffer from the "Black Disease" as it was called. I know beekeepers who suffered 100 per cent infection. In one case a yard of 60 colonies. This beekeeper hoped to lick the disease by requeening with Italian stock. Next season these Italians got hit. That was 18 years ago.

At present, EFB is turning up strongly again in Northern New York. Fifty per cent of the beekeepers, I would say, are affected. For the past few years Southern New York has been bothered somewhat right along. The EFB found in California, Colorado, and other western States, as well as that in the Western Provinces of Canada, is the same type we had to fight in Northern New York. Here at Techny it hasn't bothered us as yet.

The cause of the recurrence of EFB is, in my opinion, complacency on the part of beekeepers. As far as I have observed EFB travels in cycles; if the beekeeper is alert and ready to meet it, he can save himself a lot of trouble. And the solution is NOT drugs! ! !

I've worked for years as a bee inspector under A. C. Gould, Inspector Chief of Albany, New York (you had to do a good job to stay with him), and I have come to the conclusion that the answer to the problem is careful selection of stock resistant to EFB. Dr. E. J. Dyce of Cornell told me it was his frank opinion that EFB will be cured again as before by resistant stock.

Primarily, EFB is a disease of weak colonies and generally makes its appearance early in the year. Bees kept over the winter on poor stores are especially susceptible to it, doubly so if the winter has been a rough one. Prolonged damp weather, and a damp location also seem to favor EFB. The late Emil Gutekunst (a fine beekeeper friend of mine) of Colden, New York, suffered EFB infection in only one of his three or four yards, and that was located in a damp lowland. EFB continues to thrive after the spring dandelion flow (May 10 to 20) and up to the main clover flow (June 25). I have had well-started package bees get hit just before the clover flow. The number of colonies that actually died outright was comparatively few, but those stricken were often so weakened that as far as honey profit was concerned, they may as well have died off.

Requeen and Unite

If you find your yard has been hit, your best move is to get rid of the queens of the weaker colonies and unite them. After eight or ten days give these queenless colonies an EFB resistant queen. (Be sure to destroy any queen cells that have been made in the meantime. It often happens that EFB will have beaten you to it.) Only in one circumstance would I recommend the

use of drugs. If heavy infection turns up after the spring dandelion flow, just prior to the main clover flow, then I recommend drugs—TM-10 with powdered sugar. This stimulates bees to more activity. They clean house and bury the disease for the time being. But, **by all means** requeen colonies with resistant stock for next season. EFB bacteria will certainly turn up in that colony again. I have always dealt radically with EFB. If I found but a single diseased cell in a colony I would requeen it. It doesn't pay to play with disease.

In emergency I once tried this experiment: A colony of black bees were hit hard with EFB after the dandelion flow. So I took the brood away from the diseased blacks and gave it to a good colony of Italians (resistant stock —Jay Smith strain) that showed no signs of disease, and in turn gave Italian brood to the blacks. The Italians cleaned up the disease in their colony and the black bees weren't bothered with EFB for the rest of the year. Of course, I requeened the blacks for next season.

Resistant stock has been developed in most types of bees, but for my money none can rival the resistant strain of a cross between Caucasians and Italians. I have had my best results with them. These bees are energetic housekeepers (important in fighting disease), less prone to swarm, vigorous honey producers, are gentle in handling, remain hardy over the winter, and require little requeening.

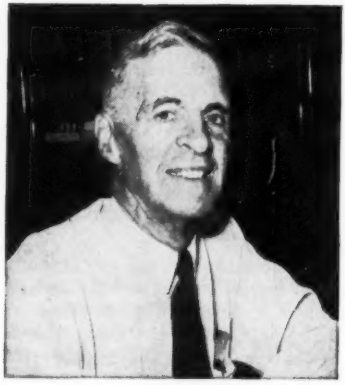
As selection of resistant stock has proved for me to be the solution to the problem of EFB in the past, so also, I am convinced with Dr. Dyce, that this remains the answer for beekeepers to the problem of EFB for the future.

Honey Can Make a Colorful Display

This display of honey, produced in Massachusetts, was shown at the Eastern States Fair at West Springfield, Mass., last fall. It was a colorful display, starting at the bottom with fruit bloom honey which was red. Next row was white basswood comb and yellow clover extracted; then a row of light clear red cranberry honey from Cape Cod, and clear light yellow Clethra honey. The names of the staff in the picture are left to right: standing, J. H. Caswell, seated, Mr. Emery, Mrs. Johnson, Mrs. Caswell, and Fred Blane. — Photo sent in by Justin H. Caswell.

A Talk to Beekeepers

by M. J. Deyell



November Days

"The chill November days have come
The saddest of the year."

NOVEMBER is a rather sad month, so far as weather and vegetation in the north are concerned. Bees have ended their labors for the season and are ready to enter a period of quiescence.

November is a month for some beekeepers to take some time off for a few days of deer and rabbit hunting. I know some commercial beekeepers in Michigan who look forward to the month of November so that they can close up their beekeeping activities and get away into the North for a vacation.

I spent one winter in northern Ontario, south of Sudbury, in a lumber camp when I was 19 years old. There is something about that country that puts new life into a person. I had an opportunity to see virgin pine forests, which is an inspiring sight.

But this doesn't have anything to do with beekeeping except to say that there are at present some beekeepers up in that area who secure fairly good crops of honey and who winter their bees either in cellars or out-of-doors or in protected places in well-packed hives to withstand the rigors of that climate.

However, there are some beekeepers in the far north who kill their bees off with Cyanogas in the fall, leaving just enough honey and pollen in single-story hives for installing packages of bees the following spring. Beekeepers who do this do not have to worry about wintering but they do have to worry about getting package bees the following spring when needed. Of course, such beekeepers should secure more surplus honey than those who winter their bees because they do not have to leave honey for winter bee food. So, perhaps it is six of one or half-a-dozen of the other but if I kept bees up in the far north, I would try packages installed as early in the spring as I could get them.

I did keep bees in northern Michigan for two years and wintered them in a cellar. Some of the colonies were quite weak in the spring and did not build up as rapidly as they should have done and consequently did not secure the maximum crop of honey.

If I had known as much then as I think I know now about wintering I could have had reasonably populous colonies of bees in the spring that would have built up normally for the major honey flow in that area during late June, July, and August.

Most of Us Are Quite Provincial

By this I mean that when we are brought up in a certain county or section of a state, we learn how to manage our bees for best results. Sometimes it takes quite a while to learn. Some of us may imagine that beekeepers in other areas or states do practically the same as we do in managing bees. I have been around enough to know that bees kept in one section of the country are managed differently from bees kept in another section. However, the fundamental principles of beekeeping are the same the world over. This is difficult for some beekeepers to get through their heads.

A Crazy Idea

I do have some crazy ideas once in a while. One of them is that I would like to keep bees in as many states as possible in order to find out more about the problems involved in beekeeping in different areas. I would like to have this first-hand information. Obviously, life wouldn't be long enough to carry out such an idea.

Picture taken about 1870 at Camp Fjaled, about 105 miles from Oslo, Norway. This shows a part of the experimental apiary of Iver Young. It would appear that cold weather is anticipated.—Picture sent by L. E. Fogg, East Providence, Rhode Island.

I have thought also that I would like to have a few hives of bees on this continent and move them from place to place during the season. For example, I might start down in Florida and secure some orange bloom honey, then move them up into Tennessee in time for a flow in that area, then move them up into Minnesota or north Alberta to take advantage of the good honey flows that usually occur in those areas.

At the end of the season up there I would move them to the southern hemisphere, possibly to New Zealand, Australia, or South Africa to take advantage of the honey flows that occur there.

Of course, this is simply a wild dream but a person with plenty of money could do it and he could have a few hives of bees moved by airplane, especially if he accompanied the bees.

As you of course know, beekeepers in the southern hemisphere are now approaching the active bee season where we in this country are going into the inactive season for bees.

It would be interesting to know how much honey a good colony of bees would produce in 12 months in the northern and southern hemispheres. Obviously, it would be necessary to introduce new queens periodically because queens would wear out under such a constant strain of egg laying. The population of the hives would die off rapidly. In other words, it might be a difficult matter to have the birth rate exceed the death rate.

I should say that this idea is not original with me. About five years ago a beekeeper living in Europe sent in a lengthy article outlining his scheme or proposed method of moving apiaries from continent to continent and from one part of a continent to the other, during the entire year, in order to take advantage of honey flows that he thought would occur at points where he wanted to move his bees.

The article sounded rather fantastic so we decided not to use it in Gleanings but we did try to let him down as easily as possible.

I wanted to ask the gentleman how he was going to transport his beekeeping equipment and bees from place to place and how and where he would find suitable locations for his bees.

More about the Four-and-One-Half-Year-Old Queen

You readers will perhaps be glad to have me drop this subject. However,

let me say that a few days ago I examined the colony which had this 4½-year-old queen last spring but could not find her and I assumed that she had been disposed of but I cannot say just how her life ended.

The young queen in this colony is doing excellent work; in fact, she had brood in seven combs on October 8th and that is unusual for a queen at this season of the year.

Just today I received a letter from a beekeeper in Massachusetts and he has something to say about what happens to old queens. If we do not find space for his short article in this issue, we will aim to have it appear in the December issue.

Are Seasons Changing?

I may have mentioned, in a former talk, about what we used to do in the Root Company apiaries years ago when feeding bees sugar syrup. In those days we wintered bees in single-story brood chambers and it was necessary to feed sugar syrup to supplement the necessary amount of honey that it takes to carry a colony through the winter in this latitude. We fed three or four ten pound pails of thick sugar syrup, made of two parts granulated sugar to one part water, to each colony early in October. At that time brood rearing had practically ceased and that is why we could begin feeding sugar syrup so early in the fall. This syrup was stored in the cells of the combs from which the last cycle of brood emerged.

We now have in this part of Ohio, a fall honey flow from goldenrod and aster which usually begins the last week of August and continues until about the middle of October. This honey flow stimulates brood rearing. It is not uncommon to find colonies with brood in from four to six combs during early October. The cessation of brood rearing occurs late in October or early November. There may be a few young queens that continue laying some eggs during November. However, November and December, also early January, are considered the months that constitute what is commonly called a period of quiescence in the life of a colony in most of the northern states and Canada.

Since we began using the food chamber hive, we have had larger colonies of bees to go into winter quarters than we had when we wintered bees in single story brood chambers. Now, I can't be too sure about this as I never actually counted the bees, but I do know or think I know that the colonies we now have going into winter are much more populous than they were years ago when we wintered in single story brood chambers and fed sugar syrup.

This Wintering Business

I have been doing a lot of thinking of late regarding the wintering of bees, especially in the north. I know from experience that in this section of Ohio bees can be wintered out-of-doors in double-brood chamber, or what are commonly called food chamber hives, successfully without any additional packing or insulation around the hives.

We used to winter colonies in quadruple packing cases, then Buckeye packed hives with packed rims around the food chambers. I had so many unfavorable experiences with packing cases and packed hives that they were abandoned.

A Disgusting Experience

Some years ago, we had a yard of almost 100 colonies in quadruple cases near Medina. We used planer shavings for packing material. One spring when we thought it was time to remove the packing cases, we went to the yard on a cool morning and took off the cases and carried them to the side of the yard. Shortly after the cases were removed, the weather turned warm and the bees started flying from their hives. Naturally they were confused and began to drift from one hive to another. There was a wind from the west and this seemed to blow the bees to the eastern side of the yard where they crowded into a row of hives along that edge of the yard. We tried to carry some of the bees back to other hives that did not have many bees. This did not seem to do much good. The result was that a few hives in the yard were overloaded with bees while other hives had scarcely any bees. The planer shavings around the hives apparently caused the bees to become confused. We have not used quadruple cases since. (I do believe, however, that quadruple cases, properly handled, can be used for wintering bees.)

For some years we have used Buckeye packed hives, also single wall hives wrapped in building paper with packing

material between the paper and the hives. During four winters we conducted experiments to compare packed colonies with unpacked colonies. (Results are recorded in back issues of Gleaning.) We weighed the two sets of hives during November, then again in April. Weights were carefully tabulated. The unpacked hives lost an average of six pounds per hive more than the packed hives. This may have been due to the fact that the unpacked bees consumed more honey than the packed bees. However, we found that the unpacked bees had more brood in the spring than the packed bees. The greater amount of honey used by the unpacked bees was apparently converted into brood.

Large Versus Small Colonies

It is possible to winter colonies of mediocre strength in single-story brood chambers. It is an advantage to feed such colonies sugar syrup, also to supply some insulation around the hives for winter protection especially in the north. At present, the majority of beekeepers throughout the country winter colonies in double-brood chamber hives. The single-story colonies may consume less honey during the winter than the double brood chamber colonies. However, the double brood chamber colonies are likely to be stronger in bees in the spring than the single story colonies. In some instances, the double brood chamber colonies reach their peak of strength rather early in the spring, possibly before the beginning of the major honey flow. Such colonies can be divided during the fruit bloom honey flow or may be used to strengthen other colonies that may not be up to par in strength. The hobby or sideline beekeeper who has plenty of time to tinker with colonies can give single story colonies needed attention during the spring months. For the commercial beekeeper, the double-story colonies appear to be preferable because if the food chambers are well filled with honey there is likely to be a sufficient amount of honey for winter and spring bee food which cuts down on the labor and expense of feeding.

Some of you may have read the article in the October, 1956 Gleanings entitled, "Wintering in an Air-conditioned Building" by T. M. Tri of Humboldt, Minnesota in which he tells how bees are wintered in that area. Winters get terribly cold up in the north and it seems necessary to give bees some protection during the winter months. I predict that during the next few decades we are going to learn more about wintering bees, especially in the north, than we have learned thus far.

The Scale Hive

Our scale hive has gained 40 pounds since September 20th. This is October 11th. The possibility of a late fall flow mentioned in my last talk did finally materialize. We have had frost the last two nights in this vicinity and if we should have warm weather for about a week, the bees are going to pile in some more honey from white aster, which in this area, seems to yield nectar well after a light frost. I'll let you know later if the scale hive makes further gains before cold weather sets in. At least our bees now have their winter stores and we may get some surplus.

Since writing foregoing the scale hive has gained five pounds a day for three days. This is October 15th.

U. S. Honey Report—According to the U. S. Department of Agricultural Marketing Service, Washington, D. C. as of October 9, 1956, this year's honey crop is estimated at 213,719,000 pounds which is 16 per cent less than last year's crop. This was produced by practically the same amount of colonies throughout the country that we had last year, 5,315,000 colonies. The per colony average throughout the country was 40.2 pounds as compared with 47.7 pounds per colony in 1955. The following states showed a slight increase over last year, Rhode Island, Connecticut, New Jersey, Virginia, North Carolina, South Carolina, Georgia, Florida, Mississippi, Louisiana, Idaho, Wyoming, Nevada, Washington, and Oregon. The remaining states had a per colony production less than last year. The estimated stocks of honey on hand for sale by producers in mid-September totalled 83,460,000 pounds as compared with 92,445,000 pounds a year ago.

XUM

Just News

The **Oregon State Beekeepers' Association** will again meet on the campus of Oregon State College for its annual convention. Meeting place will be the Food Technology Building, as last year. November 30th and December 1st are the dates, and we cordially welcome anyone interested in beekeeping to attend.—Oliver Petty, Sec'y.

The annual meeting of the **Iowa Beekeepers' Association** will be held at Ames on November 15 and 16 in conjunction with the Iowa Horticultural Society and other affiliated organizations. A producer program is being offered which, it is hoped, will encourage attendance by producers who are interested in the latest operational methods.—F. B. Paddock, Ext. Apiarist.

The **Westchester County Beekeepers' Association** will hold its next meeting at the Odd Fellows Hall, 20 Lockwood Avenue, New Rochelle, N. Y., on Sunday, November 18 at 2:30 P.M. At this meeting, we will have our "Annual Honey Show". Each member may have an entry in the following classes:

1. Light, Amber and Dark Extracted Honey in one pound jars.
2. Chunk and Comb Honey.
3. Rendered Beeswax in any shape or form.

Ribbons will be awarded for first, second, and third prizes in each class, and special prizes for honorable mentions. A Poster Contest will be held again this year. Each child accompanied by a member is required to bring one poster. It can be drawn, painted, or pasted, on anything pertaining to bees or honey. Special awards will be given to them. Let's all come out and make this an enjoyable afternoon. Visitors are welcome. Refreshments will be served.—Mrs. Alfred Roth, Pub.

Prof. N. N. Puckett, Department of Sociology, Western Reserve University, Cleveland 6, Ohio, is collecting information regarding Ohio Superstitions. A check list on Ohio Superstitions may be obtained without charge by dropping him a post card. There are many superstitions regarding bees, most of them not confined to Ohio alone but often shared by Ohio beekeepers.

The **Montana State Beekeepers' Association** will be held in Livingston, Montana, November 30 and December 1, in the Masonic Temple Building. A banquet will be held November 30. On December 2 there will be a wild animal and scenic tour into the Yellowstone Park. There will be special entertainment for the ladies. A cordial invitation is extended to all who can be present to enjoy our Montana hospitality. —Mrs. O. R. Burdett, Sec'y.-Treas.

The **Eastern Missouri Beekeepers' Association** will hold an election of officers in connection with its regular monthly meeting on Tuesday, November 6. The meeting is held on the second floor of the St. Louis County Courthouse, Clayton, Mo. Visitors are welcome.—Ray Reinhold, Sec. Treas.

The **Illinois State Beekeepers' Association** meeting will be held November 3 and 4 at the St. Nicholas Hotel, Springfield, Ill. An interesting program is in the making and a cordial invitation is extended to all beekeepers.

The **Central New Jersey Beekeepers' Association** will hold a meeting at the Monmouth County Extension Service Bldg., 20 Court St., Freehold, N. J., on Friday, Nov. 16, 1956 at 7:30 P.M. There will be a showng of a bee and pollination film followed by a question and answer period. Visitors are welcome.—Forrest Campbell, Sec.-Treas.

Utah State Beekeepers' Association will hold their annual meeting in Salt Lake City on November 30 and December 1. The place and complete program are not yet established but there will be a prominent out-of-state personality to high light the two-day affair. The program is planned to be of major interest to commercial beekeepers on Friday, November 30, and will interest hobby beekeepers most on Saturday, December 1. The annual banquet will be held Friday evening. For details, contact Mrs. Clarice Miller, Secretary, 67 E. 33rd St., South, Salt Lake City, Utah.

The first indoor meeting of the **Worcester County Beekeepers' Association** will be held at the Natural History Museum, Nov. 17. Pot-luck supper at 6:30 followed by our business meeting. A great big thanks to all our hosts and hostesses of the outdoor meetings from all of us. Everyone is invited to join with us this season inside.—A. W. Rozenas, Chairman Pub.

The **Texas Beekeepers' Association** will hold a meeting, November 12 and 13th at College Station. Competent speakers will participate in an outstanding program. Of interest to all will be the results of a pink boll weavil problem between plant breeders and entomologists. It was stated at the meeting that if a type of cotton without nectaries was developed, the moths would not be attracted to the cotton to lay eggs and the problem would be solved. But what about the beekeepers problem?... another topic for discussion.

The next meeting of the **Middlesex County Beekeepers' Association (Mass.)** will be held on Saturday, November 24, 1956, at the Waltham Field Station. There will be a pot-luck supper at 6:30 P.M., followed by a business meeting. Speaker of the evening will be Harold Swasey of Warren, Mass. who will speak on the "Anatomy of the Queen Bee". Visitors welcome. On October 27th approximately 100 members and guests gathered to enjoy the catered banquet which opened our fall and winter season. The members were privileged to hear a talk by Frank R. Shaw, Association Professor of Entomology and Beekeeping at the University of Massachusetts.—L. C. Proctor, Corres. Secretary.

(Continued on page 700)

WHAT: The 14th Annual Convention of The American Beekeeping Federation
WHERE: Long Beach, California
WHEN: January 29 to February 1, 1957 (inclusive)

NOW IS THE TIME to make your plans and attend this convention. The program is being developed to have points of interest for all, whether you are a hobbyist, the operator of thousands of colonies, a package bee shipper, a manufacturer of bee supplies, a a packer of honey, or a dealer. You will find timely and interesting topics during the convention at Long Beach, California.

Most of us are in business because we like what we are doing, but to be realistic, we must also recognize that our business, in order to continue, must also be profitable. To bring about a greater concentration of thought in the direction of making our industry more profitable, we have selected the convention theme, "Economics of Beekeeping". All segments of our great industry are directly, or indirectly, affected by the economic status of the others.

Make your plans now to visit California in January. You will receive Western Hospitality at its very best. You will enjoy the golden sunshine of Southern California and the geographic setting of California's great convention city, Long Beach. There will be tours, sight-seeing trips, and opportunities to visit Hollywood, the motion picture and television center of the world.

A special program is planned for the ladies and a great deal of the time taken up for the sessions of the convention, which she might not wish to attend, will give her opportunities to enjoy time for personal shopping or moments of relaxation by the sea. Surely no woman could resist this invitation.

You cannot afford to miss the 1957 convention. The programs will be presented with personal talks plus roundtable discussions. Reports will also be given on the National Congress which was held last summer in Vienna. Special time and interest will be given to the research program of our industry; the progress of our marketing committee and a projection of its future plans; some of the problems to overcome in exporting honey to foreign countries plus inspirational talks which will endeavor to bring about interest and advancement in our great beekeeping industry.—Howard Foster, Chairman of Convention Committee.

XUM

Buy and Sell

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate: 18c per counted word, each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in by the 10th of the month preceeding publication.

HONEY FOR SALE

WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. The Hubbard Apiaries, Onsted, Michigan.

IOWA honey, one can or truck loads. Russell D. Smalley, Beaver, Iowa.

CLOVER extracted honey in sixties. Abram Brubaker, Rt. 2, Lancaster, Pa.

MICHIGAN'S finest raspberry, basswood, clover comb honey, in 4 x 5 window cartoned cellophane wrapped sections. Extra fancy, $8.00; Fancy, $7.00; No. 1, $6.00; No. 2, $5.00 case. E. Z. Quick Way B Farms, Boyne Falls, Michigan.

MY CROP of light honey. Wayne Keller, Oshkosh, Nebr.

Write to Schmidt Honey Farms, Rt. 4, Bay City, Michigan for light amber and white honey in 60's.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTICE—We can not guarantee honey buyers' financial responsibility, and advise all beekeepers to sell for cash only or on C.O.D. terms except where the buyer has thoroughly established his credit with the seller.

CASH for all types extracted honey. Send sample and best price. Buckeye Honey Co., 3930 No. High St., Columbus 14, O.

CASH FOR BEESWAX. Write as to quantity and we will quote price. Muench-Kreuzer Candle Co., Inc., Syracuse, N. Y.

WANTED—All grades of extracted honey. Send sample and price. Deer Creek Honey Farms, London, Ohio.

WANTED — White extracted or comb honey. Send sample. Millersport Honey Company, Millersport, Ohio.

BEST CASH DEAL for your honey (any grade) and beeswax. Alexander Company, 819 Reynolds Road, Toledo, Ohio.

HONEY WANTED, all grades in 60's. Mail samples, advise quantity, best price. M. R. Cary Corp., 1112-14 East Erie Blvd., Syracuse, N. Y.

BEESWAX WANTED — Highest prices paid in cash or trade for bee supplies. The A. I. Root Company, Medina, Ohio; Council Bluffs, Iowa; San Antonio, Texas.

WANTED, chunk comb and extracted honey. Mail sample and price. Stoller Honey Farms, Latty, Ohio.

WRITE FOR Shipping tags and quotations on rendered beeswax. We buy from one pound up and if you have over 25 pounds let us work it into foundation for you at a 25 per cent saving. Walter T. Kelley Co., Clarkson, Kentucky.

HONEY WANTED — All grades and varieties. Highest cash prices paid. Mail samples. State quantity. HAMILTON & COMPANY, 2613 South Yates Ave., Los Angeles 22, California.

WANTED: Light amber clover and fall flowers honey, no buckwheat. Also white clover. Send sample and lowest price. Cloverdale Honey Co., Fredonia, N. Y.

WANTED—Honey in sixty-pound cans, also beeswax, any quantity. L. E. Allen, Tipton, Mich.

CASH for Amber and Bucywheat Honey. Best cash price for wax. Hubbard, Onsted, Michigan.

WANTED—Buckwheat and light amber honey. Eastern Food Products, 421 Bedford Ave., Brooklyn, N. Y.

WANTED—Extracted honey, all grades, all amounts. We pay cash. Send sample and price wanted. The Honeymoon Products Co., Box 85, River Rouge, Mich.

HONEY WANTED — Highest cash prices. All grades, advise quantity. Mail samples to: J. Grossman & Co., 402 Spadina Ave., Toronto, Ont., Canada.

BEESWAX—Top prices, your Southern, Southwest and Southeastern steady market. Any quantity. Sell with confidence. BELL, INC., Box 4532, Jackson, Miss.

CLOVER COMB HONEY WANTED. W. R. Moomaw, Stone Creek, Ohio.

COMB HONEY WANTED from Ohio, New York, Pennsylvania. Window cartons and shipping cases not wanted. Cash at your honey house. Henry D. Masterson, 73 Nichols Street, Rochester, New York.

FOR SALE

WRITE FOR CATALOG — Quality Bee Supplies at factory prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries, Manufacturers of Beekeepers' Supplies and Comb Foundation. Onsted, Michigan.

THE BIGGEST BEE SUPPLY Catalog published (64 pages) free for the asking. Listing many items not found in other catalogs. No agents—buy direct and save 20%. WALTER T. KELLEY CO., CLARKSON, KENTUCKY.

FOR SALE—New heart cypress 10-frame bottom boards. KD, 10 or more, $1.00 each; 50 or more, 90 cents each; 100 or more, 85 cents each. One nailed up sample postpaid, $1.25. Fred L. Poole, Elizabethtown, Rt. 2, Box 67, No. Car.

QUEENBEE PAINTING OUTFITS, $1.50 postpaid. Southwick Apiaries, Waban, Massachusetts.

Paper cartons for sixties, new and used. Old Taylor Honey Co., Harlan, Iowa.

BEES AND QUEENS FOR SALE

We use all possible care in accepting advertisements but we cannot be held responsible in case disease occurs among bees sold or if dissatisfaction occurs. We suggest that prospective buyers ask for a certificate of inspection as a matter of precaution.

CARNIOLANS and CAUCASIAN bees. Queens, $1.00 each; $85.00 per 100. Booking orders for 1957. Lewis & Tillery Bee Co., Route 3, Box 251, Greenville, Ala.

WILL SELL PART or all of bees and equipment of 700 colonies. Very reasonable. Other interests. David Kember, R. 2, Sarnia, Ontario.

SEEDS

HONEY PLANTS our specialty. Catalog on request. Pellett Gardens, Atlantic, Ia.

HELP WANTED

HELP WANTED — Printer for general printing office work, including press operation. The A. I. Root Co., Medina, Ohio.

HELP WANTED: Will pay $300.00 to $350.00 for experienced help and up to $400.00 per month for top experienced help during the summer rush. Even more if you can fill the bill. M. E. Ballard, Roxbury, N. Y.

Commercial honey producer has permanent position open for good reliable experienced beekeeper. Good future for a good man. Box 1156, Gleanings, Medina, O.

MISCELLANEOUS

PLAIN or wavy-wired foundation. Beeswax rendered and purchased. Wax Workers, Ithaca, New York.

ROYAL JELLY in capsules. Each contains 10 mg. Royal Jelly, 5 mg. Vitamin B, 5 mg. Calcium Pantothenate. Boxes of 30, $1.50 to beekeepers. Retails for $3.00. Prairie View Honey Co., 12303 12th St., Detroit 6, Michigan.

FOR SALE—Royal Jelly and The Little Queen Royal Jelly Extractor. Royal Jelly Enterprises, 1017 Los Carneros Avenue, Napa, California.

Wish to purchase bees in New York. Box 105, Gleanings, Medina, Ohio.

MAGAZINES

Know interesting facts concerning the bees of India through the INDIAN BEE JOURNAL, published in English by the Bhupen Apiaries (Himalayas), Ramgarrh Dist. Naini Tal, U. P. India or available through them. Subs. Rs9/ or 15 shillings or $2.25 yearly. Sample copy post free for Rs½, or s2/6, or 20 cents (International Money Order). Payment in mint postage stamps of your country accepted.

HONEY LABELS
Improved designs, embodying color, balance, simplicity, and distinction. Please send for free samples & prices.
C. W. AEPPLER COMPANY
Oconomowoc, Wisconsin

CAUCASIAN
Package Bees and Queens
for 1957
Howard Weaver
Navasota, Texas

PACKAGE BEES and QUEENS
Italian and Italian Hybrid
JACKSON APIARIES
Funston, Ga.

ITALIAN
Queens and Package Bees
1957
W. E. PLANT
Hattiesburg, Mississippi

BETTER-BRED QUEENS
Three Banded Italians
We wish to thank our customers for their patronage in 1956 and looking forward to serving you again in 1957.
CALVERT APIARIES Calvert, Ala.

HONEY WANTED
Carloads and less than carloads. Mail sample and best prices in all grades.
C. W. AEPPLER COMPANY
Oconomowoc, Wisconsin

XUM

QUEENS

ITALIANS CAUCASIANS

Last call to get some of those good STOVER queens this Fall.

—PRICES—

In Lots of:

1 - 24 ..... 85c

25 - 499 ..... 75c

Tested queens $2.00 each.

The Stover Apiaries

Mayhew, Miss.

J. E. WING & SONS
43 Years Continuous Service
Italian Package Bees
and Queens
Our Specialty
Knights Landing, Calif.

Booking orders now. Over 30 years a shipper. Send for Free Circulars.

BLUE BONNET APIARIES
Weslaco, Texas

HARPER'S FAMOUS HIGH QUALITY
Italian Queens, air mail .....75c each
10 and up .....70c each
CARLUS T. HARPER
New Brockton, Ala.

No More Queens This Season
We will enlarge our queen yard for 1957. For quality queens, remember
MITCHELL'S APIARIES
Bunkie, La.

Archiv fur Bienenkunde, International journal for Bee Culture and beekeeping economics. Founded in the fall of 1918. Oldest economic bee journal in the world. Praised again and again for its decades of independent leadership through many endorsements and advice as a valuable source also for the practice. Classic. Yearly DM 5.50. Any aspiring beekeeping friend will receive a sample copy. Biene-Verglag, Gielbach, Lindau, Germany.

BEE WORLD, the international journal of the Bee Research Association published monthly, contains the latest research reports on bees and beekeeping. With **Apicultural Abstracts** it costs $3.00 per annum. Apicultural Abstracts only $1.75 per annum from the Hon. Subscription Secretary, Bee Research Association, 10 Barnett Wood Lane, ASHTEAD, Surrey, England.

Read the South African Bee Journal. Published every two months. Subscription 7/6 per year to the Treasurer, P. O. Box 3106, Cape Town, South Africa.

INTERESTED in Angora Goats, Read the Sheep and Goat Raiser, Hotel Cactus, San Angelo, Texas. The only magazine published serving the Angora Goat industry. Subscription $1.00. Sample copy 15c.

YOU'LL LIKE GOAT MILK! Profit and health with dairy goats. Sample monthly magazine and information FREE. Dairy Goat Journal, Dept. T, Columbia, Mo.

ITALIAN
Package Bees & Queens
Let us plan with you for 1957.
THE WILBANKS APIARIES
Claxton, Georgia

Italian Queens

EUGENE WALKER
Rt. 2, Box 207
Live Oak, California

HOLLOPETER'S ITALIANS
Bred for
HARDINESS, LONG LIFE,
WORKING QUALITIES.
Queens ..... $1.00 each
WHITE PINE BEE FARMS
Box 810, Rockton, Pa.

THE AUSTRALASIAN BEEKEEPER
The senior beekeeping journal of the Southern Hemisphere provides a complete cover of all beekeeping topics in one of the world's largest honey producing countries. Published monthly by Pender Bros. Pty. Ltd. Box 20, P. O., Maitland, 3N, N.S.W., Australia. Subscription by Bank Draft or International M. O. 18/-(approx. $2.15) per year, post free. Sample copy free on request.

Protect Your Future. Buy Your Savings Bonds Now.

YORK'S PACKAGE BEES AND QUEENS

For 1957

The Preference of Leading Honey Producers.

Reg. U.S. Pat. Off.

Your requirements for package bees should be determined just as early as possible and orders booked to be assured of your bees when wanted. Orders may be placed now subject to later price approval for 1957. Some increase in price is imminent due to the ever-increasing cost of production which has been so severe.

We offer our strain of Italians and Dadant's Starline Hybrid queens. Due to increasing demand it is our plan to enlarge production on these.

Our bees as a whole are in better condition at this time than in several years. We are getting ready now to serve you better with a larger supply. Let us hear from you regarding your requirements for the coming season.

YORK BEE COMPANY JESUP, GEORGIA
(The Universal Apiaries)
P.O. Box 300 412 W. Orange Street Phones: 3522, 3320

IN APPRECIATION!

Once again permit us to say — "Thank you, for your wonderful patronage". Through the years there have been many ups and downs for most of us, but certainly our ups have out-weighed our downs mainly because of your confidence in our humble efforts to serve you fairly, and to the best of our abilities. Our great desire is for a continuation of our past pleasant relationships. We rejoice in your success with our products.

JENSEN'S APIARIES MACON, MISS. U.S.A.

Reg. U.S. Pat. Off.

QUEENS "GULF BREEZE" ITALIANS

We will have queens during November for those in a position to use them. Orders accepted according to supply. Better late than never, so order NOW.

Prices: 1-9, 80c each 10 or more, 75c each. Air Mailed.

BESSONET BEE COMPANY Donaldsonville, La.

"The Australian Bee Journal"
Published by the Victorian Apiarists' Association at the beginning of each month.
Subscription 10/-per annum plus 2/6 postage to overseas countries.
Box 167, Rainbow, Victoria, Australia

BRITISH BEE JOURNAL
The Only WEEKLY BEE Journal in the World
Subscription $4.50 per annum payable in advance.
Keep up to Date in Beekeeping by taking out a subscription now through our agents:
Gleanings in Bee Culture
Medina, Ohio

Canada's
National Monthly Magazine
for Beekeepers
Canadian Bee Journal
Streetsville, Ontario, Canada

OLDEST BEE JOURNAL IN THE ENGLISH LANGUAGE

Keep up on markets, practices, scientific data, regulations and plant possibilities.
1 year, $2.00, U. S. and Canada
Foreign postage, 50s a year extra
AMERICAN BEE JOURNAL
Hamilton, Illinois

NOW is the time to
ORDER
Your HONEY LABELS
Ask for our Label Catalog
THE A. I. ROOT COMPANY
Medina, Ohio

PAYNE HYDRAULIC LOADER

U. S. Pat. No. 2 755 943

* SCIENTIFICALLY DESIGNED: Balance, weight and lifting capacities carefully planned.
* CONSTRUCTION: Materials and assembly methods produce the rugged machine so well received by owners. No structural weakness has come to light on any loader manufactured.
* OPERATION: Hydraulic elevating and leveling with sturdy telescoping columns. Entire handling operations controlled from lifting fork. Positive brake stops boom at any position.
* POWER: Hydraulic; electric controlled.
* ENCLOSED FROM WEATHER: All bearings and controls shielded from weather with metal coverings.
* EXPERIENCE: Five years constructing these hive loaders. Field operations have proven the sound manufacturing techniques used.

PAYNE MFG. CO., Yorba Linda, Calif.

R. F. Harris, Sales Division

8192 E. 20th St., Westminster, Calif.

Write for free descriptive folder.

JUST NEWS

(Continued from page 695)

The regular meeting of the **Norfolk County Beekeepers' Association** will be held at 8:00 P.M. Monday evening, November 5, in the Norfolk County Agricultural School, Walpole, Mass. An interesting program has been planned. Visitors are welcome.—Betty Ann Fisher, Publicity.

The 23rd Annual Convention of the **Alberta Beekeepers' Association** will be held at the Stampeder Hotel, in Calgary, November 13 and 14. The line-up of speakers and beekeeper discussions makes this year's convention look like one of those conventions you should not miss. Westerners are noted for their hospitality, and when Westerners

(Continued on next page)

No more Dadant Starline Hybrid Queens for balance of this season. Look out again for our Starline ad in 1957.

GARON'S 3-BANDED ITALIANS ONLY for balance of season.

Prices 1-24 ....95c 25-99 ....90c 100-up 85c

Queens clipped and/or marked, if desired, free.

GARON BEE COMPANY Donaldsonville, La.

DADANT'S STARLINE HYBRIDS

Reg. U.S. Pat. Off.

HONEY WANTED

Cut Comb and Extracted

Advise what you have

T. W. BURLESON & SON

WAXAHACHIE, TEXAS

HONEY BEES AND COTTON PRODUCTION

(Continued from page 652)

tained at any desired population level to serve alone as pollinators or to supplement the deficient local supply of the other pollinating insects.

Effect of Bees on Flowers

The activity of bees on cotton may be determined by observing the stigmas of the flowers. Stigmas over which the bees have thoroughly scattered pollen before noon indicate good pollinator activity. Cotton breeders believe that little pollination takes place after noon; so the morning activity is important. Another key to the activity of bees is the appearance of the flowers. Flowers not visited by pollinating insects stay white or cream-colored and remain open until sunset, but flowers freely visited by bees begin to turn pink and close by about 5 p.m. These two characters, stigma coverage with pollen and flower color, may be used to determine whether or not the cotton is receiving adequate bee visitation.

LITERATURE CITED

1. Kearney, T. H. 1923. Self-fertilization and cross-fertilization in Pima cotton. U. S. Dept. Agr. Bul. 1134.
2. Meade, R. M. 1918. Beekeeping may increase cotton crop. Jour. Hered. 9(2): 282-288.
3. Shishikin, E. A. 1952. Effect of pollination by honeybees on increasing the productivity of cotton. (In Russian) In Za povyshenie produk. pchelov. by Krishchunas, p. 95-103. Moskva, Gos. Izd-vo Selkhoz Lit-ry.
4. Simpson, D. M., and Duncan, E. N. 1953. Effect of selecting within selfed lines on the yield and other characters of cotton. Agron. Jour. 45(7): 275-279.

JUST NEWS

(Continued from previous page)

entertain in the Stampede City in the Stampeder Hotel, you can't miss having a worth-while time. A cordial invitation to visitors South of the Border is extended. The weather may be cold but the welcome will be warm. So bring a carload to the Alberta Beekeepers' Convention. — J. W. Edmunds, Supervisor of Apiculture.

The **Washington State Beekeepers' Association** will hold its annual convention at Yakima, Wash., on December 7 and 8 in the Chinook Hotel. The banquet will be held December 7 at 6 P.M. —Mrs. Glen Miller, Sec.

The **Ontario Beekeepers' Association** meeting will be held in the Prince Edward Hotel, Toronto, on November 30 and December 1. A cordial invitation to all.

Our readers will recall that the revision of U. S. Standards for grades of comb honey was proposed and that interested parties could submit comments and views until December 31, 1956. Later this date for receiving comments and views was pushed up to February 28, 1957, which will permit more time for those interested in comb honey to give the matter their serious consideration. The Federation President Joaquin Watkins has asked Glenn Gibson to be chairman of the committee on comb honey grades, so please send your suggestions or comments to Glenn Gibson, Minco, Oklahoma.

Don't Let Bees Die

There may be a tendency on the part of some beekeepers, in areas where little or no surplus honey was secured, to neglect bees. Feed sugar syrup, you'll be glad you did.

XUM

SUE BEE SAYS:

"HAVE YOUR BEESWAX MADE INTO SUE BEE FOUNDATION"

To save you more money take advantage of the low exchange prices on SUE BEE FOUNDATION. The most modern equipment and the extra-special hand inspection of each sheet gives you the finest foundation. SUE BEE FOUNDATION is available in all regular sizes and can be made in any special size or weight the beekeeper may desire. SUE BEE Wired Foundation is made with corrugated, hard steel, vertical wires to give positive support to the combs. SUE BEE Cut Comb and Thin Surplus Foundation is made of light, fragrant wax; sure to attract the bees and please the most discriminating beekeeper. ALL SUE BEE FOUNDATION IS MADE OF PURE BEESWAX.

Write for a copy of the low working rates.

If you need wooden goods, now is the time to buy. Spend your time this winter profitably nailing frames and supers. Next summer will be too late to start wishing for extra supers to secure all the honey available to your bees. We handle Leahy Woodenware, all top quality at a fair price. We do not have utility grade or second grade merchandise. When you buy consider quality, then price, as a measure of value.

Standard Brood Frames	**$12.25 per 100**
Standard Hive Bodies	**9.25 per 5**
5 3/8" Supers, empty	**5.95 per 5**
6 5/8" Supers, empty	**6.95 per 5**
Wood Covers	**6.15 per 5**
SUE BEE Outside White Paint	**4.95 per gallon**
SUE BEE Aluminum Paint	**4.35 per gallon**

We shall appreciate the opportunity to serve you and assure you personal attention and prompt shiment.

Sioux Honey Association, Sioux City, Iowa

Rogers, Texas; Waycross, Ga.; Lima, Ohio; Colton, Calif.; Tacoma, Wash.

ROUGH SIDE OF BEE INSPECTING

(Continued from page 675)

said he had some supers all ready with full sheets of foundation in his shop over the spring, which we entered by a door on ground level above the spring. We placed the supers where needed and discussed what he should do with the queenless and diseased colonies.

He was given our stock advice to all beekeepers—requeen colonies of black bees with Italian stock to control European foulbrood and have bees that were resistant to that particular disease and that were more gentle and easier to manage. All of his eleven colonies should be requeened at once. His reply was also characteristic of farmer-beekeepers, that he did not know how to find the old queens and the bees would likely be so mean that he could not do the work anyway.

I suggested to him that a queen breeder several miles away, who was building up a nice queen bee business, might be willing to bring queens and do the work for him. He was pleased with the suggestion and said that they were friends. When he learned that we were going that way and would call on the queen breeder, he asked me to tell of his need for queens and the work to be done. This was done, and a few days later Mr. Jason Hollopeter, now a well-known queen breeder, did well his part in the transaction.

As we were walking toward our automobiles, an interesting episode occurred. The beekeeper said to me, "You are Rea from Reynoldsville, are you not? I bought my bee hives in Reynoldsville". He then asked if I was acquainted with Mr. E. R. Root of Medina, Ohio. "Yes, and right here he is," I replied. The way those men shook hands was a sight. After that it looked like an all-day session, but we had to go soon. I don't know yet why Ernest Root failed to have his camera along on that trip.

After I returned to my office in Harrisburg I wrote the beekeeper a cordial letter, without mention of the unpleasant beginning of our visit, and he replied just as cordially and invited us to return when we could.

Look! Queens!

To close our queen yards we are offering our remaining supply at reduced prices.

	Island Hybrids	Reg. Stock
1-24	$1.10 ea.	85c ea.
25-99	1.00 ea.	75c ea.
100 up	.90 ea.	65c ea.

Orders filled in order received. All checks and money orders with orders we cannot fill will be returned promptly.

Rossman Apiaries

P. O. Box 133, Moultrie, Ga.

Carniolan QUEENS Caucasian

The 1956 season is drawing to a close and I desire to thank all my customers for their patronage and patience in delayed orders caused by early drouth, a fire, and the Mediterranean fruit fly sprayings that were encountered in Florida. Preparing for increased output in 1957. Booking orders now. Not too late to replace those old failing queens with young laying queens. Queens, $1.30 each. To foreign countries, $2.00 each.

W. D. REAMS
Box 87
La Belle, Florida

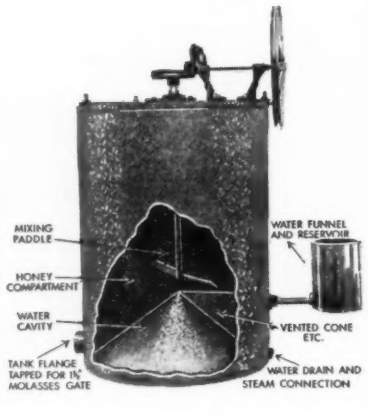
The New Zealand Beekeeper

The Quarterly Magazine of the National Beekeepers' Association of New Zealand. Better Beekeeping—Better Marketing. Subscription, 8 shillings per year, payable to

THE GENERAL SECRETARY
Box 19 Foxton, New Zealand

Prepare for the Future . . . .
Buy United States Savings Bonds Regularly!

Kelley's Double Boiler



All liquid honey should be heated before it is bottled to prevent granulation. All large packers have high priced equipment to process their honey in but Kelley is the only one to offer low priced honey processing equipment for the small beekeeper and honey packer.

KELLEY'S DOUBLE BOILERS are made in 40 and 100 gallon sizes, with or without the mixing paddle attachment (which can be installed on older tanks or later), made with copper bottoms. The prices start at $30.00. Manufactured for nearly 20 years, only by Kelley. Also available in stainless steel. Quick shipment from stock. For specifications and prices, write for our big, free 64-page catalog.

WALTER T. KELLEY CO. Clarkson, Ky.

Index to Display Advertisers

C. W. Aeppler Co. 697
American Bee Journal 699
Australasian Beekeeper 698
Australian Bee Journal 699
Bessonet Bee Co. 699
Blue Bonnet Apiaries 698
British Bee Journal 699
Burleson & Son, T. W. 701
Calvert Apiaries 697
Canadian Bee Journal 699
Cary Corporation, M. R. 642
Chrysler & Son, W. A. 642
Dadant & Sons ..... Inside front cover
Garon Bee Co. 701
Harper, Carlus T. 698
Hazel-Atlas Glass Co. ..... Outside back cover
Honey Sales Co. 647
Hubbard Apiaries 647
Hutchison Mfg. Co. 647
Jackson Apiaries 697
Jensen's Apiaries 699
Jepson Co., H. H. 647
Kelley Co., Walter T. 704
Lotz Co., August 643
Marshfield Mfg. Co. 643
McCord Mfg. Co. 647
Miller's American Honey Co. 646
Mitchell's Apiaries 698
Morrill, Frank L. 646
Muth Co., Fred W. 644
Payne Mfg. Co. 700
Plant, W. E. 697
Prairie View Honey Co. 643
Reams, W. D. 703
Root Co., The A. I. ..... Outside back cover, 648
Rossman Apiaries 703
Schmidt Apiaries 642
Sioux Honey Co. 702
Stoller's Honey Farms 644
Stover Apiaries 698
Superior Honey Co. 644
Taylor, Stewart 646
Vimtrup, Jens P. 647
Walker, Eugene 698
Weaver, Howard 697
White Pine Bee Farms 698
Wilbanks Apiaries 698
Williams Bros. Mfg. Co. 642
Wing & Sons, J. E. 698
Woodman Co., A. G. 643
Yates, A. W. 642
York Bee Co. 699